

COMPANION MERCHANDISE

Westinghouse Range Retails for \$79.50

MANSFIELD—Just introduced by Westinghouse Electric & Mfg. Co., is the new A-63 range, which retails for \$79.50.

The new range has the convenience outlet on the front and the oven control on the top, so that it may be fitted flush with other work surfaces in electric kitchens. It is 36 in. high.

Features include an electrically driven clock which has a "carry over" of three hours in case current should be interrupted. This is achieved by a spring mechanism which is kept tightly wound by the electric drive. The clock will control 3,500 watts at 250 volts alternating current.

The oven is controlled by a direct-action, built-in thermostat, has two units of 1,500 watts each, and has a pilot light to indicate to the user when the oven has reached a set temperature.

The range is equipped with open surface units, one 2,000-watt unit and two 1,200-watt units. The platform, backplaster, and front of the range are finished in white porcelain enamel, and the ends and legs in Dulux.

Average Price on Oil Burner Jobs Drop

PROVIDENCE, R. I.—The average retail price of oil burner installations made in this city dropped 17 per cent in 1934 as compared with 1933, reports the inspector of buildings for Providence.

In 1933, 491 oil burner installations, valued at \$198,650, were inspected as against 571 installations, valued at \$192,150, in 1934. Since the valuations represent total retail installed price, the average price per installation in 1933 was \$405, and in 1934, \$336.

Schlegel Organizes Firm To Make Accessories

NEW YORK CITY—F. G. Schlegel, formerly wholesale sales manager of the New York district for Frigidaire Corp., has organized a company, Jiffy Products, to sell racks containing six glass "Jiffy" jars for "left-overs."

Decker Heads F-M Laundry Sales

CHICAGO — L. M. Decker, former divisional manager in the Illinois territory for Fairbanks-Morse Home Appliances, Inc., has been appointed manager of home laundry equipment sales for that company.

Mr. Decker has had 10 years' experience in the washer and ironer manufacturing and sales field. From 1925 to 1929 he operated his own washer manufacturing company, L. M. Decker Co. of Omaha. From 1930 to 1934, he held a sales management position with a nationally known washer manufacturing company.

PROPERTIES REQUIRED IN GOOD REFRIGERATOR TUBING

The three most important characteristics of good copper refrigerator tubing are

1. Clean bright surface finish, especially on the interior of the tubing.
2. Absence of all surface moisture inside the tube.
3. Uniform soft temper to permit easy fabrication.

Except for the first, these properties may not be apparent until the tubing is installed or until it has been in service for some time. Consequently it is of primary importance to use only tubing of proven quality.

The careful selection of metal, the Wolverine extrusion process and the special automatic electric anneal developed by Wolverine assures a mirror-like finish inside and outside. Wolverine tube is thoroughly dried and has a uniform soft temper that can be varied at will to meet specific requirements.

Write for detailed information.

WOLVERINE TUBE CO.
SEAMLESS COPPER BRASS & ALUMINUM

1491 Central Ave.

Detroit, Mich.

G-E Salesman Builds Sale of Refrigerator Into \$2,259 Order

BOSTON—Cornelius J. O'Leary of the Malden, Mass., district office of W. L. Thompson, Inc., General Electric distributor here, closed a deal for \$2,259 worth of G-E equipment to a prospect he came across while cold canvassing.

In his first call at the home of the prospect, a Mrs. Hook, in an unimproved section of the city, Mr. O'Leary was told the family might be interested in an electric refrigerator in the spring. A second call elicited the information that Mrs. Hook expected to inherit \$20,000 from a wealthy Boston woman for whom she had been a servant. The money was to be paid in the spring.

Start of the order was a 30-day trial of G-E model X-7 refrigerator. Later, with the cooperation of J. P. Maloney, retail sales manager for W. L. Thompson, Inc., Mr. O'Leary started to sell Mrs. Hook on the idea of an all-electric kitchen.

Visits to the homes of all-electric kitchen owners were made, topped off by a trip to the Boston Thompson showroom for a demonstration on the speediness of electric cookery, as well as a look at the model D G-E dishwasher. This ended in Mrs. Hook's signing a \$900 order for the refrigerator, range, and dishwasher.

Next, the prospect was presented with an estimate for remodeling her kitchen. Her objections to the cost of the improvement were overcome, and she signed a contract. At the same time, she contracted for a heating plant and oil burner for her home.

The question of payment was the biggest stumbling block to Salesman O'Leary. Finally he hit upon the idea of inducing Mrs. Hook to sign a mortgage on her home, pending payment of the \$2,000 to her.

The mortgage note was signed, the kitchen was installed, Mrs. Hook received her \$20,000, W. L. Thompson, Inc., received cash in full for the contract, and Mr. O'Leary received a sizeable check as his commission.

Washing Machine Firm Organized in Michigan

HOLLAND, Mich.—Officers of the newly organized Carl E. Swift Corp. of this city, manufacturer of electric washing machines and other appliances, are: Carl E. Swift, president; E. G. Landwehr, vice president and treasurer; Henry I. Stimson, secretary; Frank E. Stearns, works manager.

Langeland's to Service & Install Norge Burners

TACOMA, Wash. — North Coast Electric Co. recently appointed Langeland's to install and service Norge oil burners in Pierce county. F. H. Langeland is head of the organization.

Puget Sound Utility Retails Ranges on \$1.95 Down Payment

SEATTLE—To increase the sale of electrical appliances in eastern and western Washington, new low-price merchandising offers were announced, effective Jan. 21, by J. Frank McLaughlin, president of the Puget Sound Power & Light Co., and J. D. Ross, superintendent of the Seattle department of lighting.

The power company is offering Hotpoint electric ranges for \$1.95 down payment and \$1.95 a month, and automatic water heaters with Monel Metal tanks for \$2.35 down and \$2.35 a month.

The Seattle light department is offering L & H, Hotpoint, or Westinghouse electric ranges at \$1.75 down and \$1.75 a month, and water heaters at \$2 down and \$2 a month. The city has also announced reductions as high as 50 per cent in the cost of wiring homes for ranges and water heaters.

Junior Salesmen Help Sell 7,000 Radios

CINCINNATI—Sale of approximately 7,000 Crosley radio sets is directly traceable to junior salesmen who entered the Christmas sales contest held by Crosley dealers, declares Glenn H. Corbett, advertising manager of the Crosley Radio Corp.

The 10 winners were awarded small gasoline-engine-driven automobiles valued at \$250 each. A commission of 5 per cent was paid by the dealers to all junior salesmen participating in the contests held under the direction of the various dealers. Points in the contest were awarded on the basis of five to each dollar value of sale.

The contest was restricted to boys and girls of 18 years of age and under.

Crosley Develops 10-Tube All-Wave Radio

CINCINNATI — A deluxe all-wave radio to sell for \$100 in the lowboy style and \$79.50 for the table model is now being marketed by Crosley Radio Corp. This 10-tube superheterodyne radio, with two double-purpose tubes, is called the Crosley Centurion.

Both models have five tuning bands—American, foreign, police, amateur, aviation, and weather. Features provided are band spread pointer, illuminated airplane-type dial, automatic volume control, dual ratio tuning control, continuous tone control, push-pull output, and floating moving coil electro-dynamic speaker.

New Coffee Maker Is Developed by Hotpoint

BRIDGEPORT, Conn. — A new eight-cup Hotpoint coffee-maker has been introduced by the merchandise department of the General Electric Co.

The upper bowl has a metal cover which may be inverted to hold the bowl after the coffee is prepared. The lower bowl is equipped with a black "textolite" lifting handle and is marked for exact cup measurements. Both bowls are made of pyrex glass.

The drainer assembly is made of china and has a lifting handle held in position by a Monel-metal spring—the only metal with which the coffee comes in contact. The base of the coffee maker has a stove with a glow-coil heating element, with terminals mounted directly on the base of the stove. A coffee measure and an extra cloth strainer are provided. All metal parts are finished in chromeplate.

Swartz Directs Western Sales for Standard

TOLEDO—William P. Swartz, who has been Pacific Coast district representative for Standard Electric Stove Co. for 15 years, has been appointed manager in charge of western distribution.

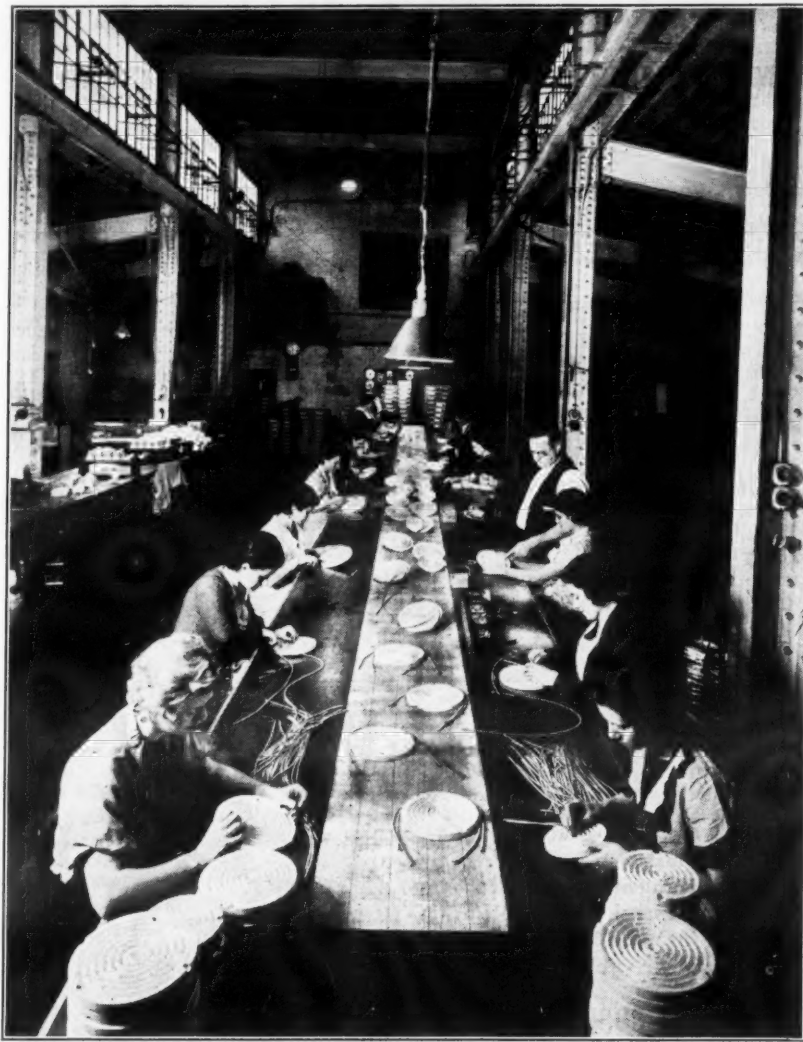
Mr. Swartz began his electrical career as a salesman for the A. T. Knowlson Co. in Detroit, at that time establishing many dealers for Standard Electric ranges in the Michigan territory. In 1919 he went to the coast for Crystal Washers. In 1920 he became associated with the Standard company.

Oil Burner Group Rejects Plan to Join Nema

DETROIT—Affiliation with National Electrical Manufacturers Association was rejected by directors of the American Oil Burner Association at a quarterly meeting held at the Hotel Statler here recently.

The board decided that nothing further be done along this line for the present "because of unusual circumstances in connection with the respective Codes of Fair Competition."

Assembling Heating Elements



Surface elements for replacement use on all types of electric ranges are assembled on this production line at Electromaster, Inc., in Detroit.

Hotpoint Introduces New Waffle Iron

BRIDGEPORT, Conn.—A new 660-watt, 115-volt Hotpoint waffle iron, the Warwick, was recently announced by the merchandise department of the General Electric Co. here. List price of the waffle iron is \$6.45.

Features of the new appliance are an expanding hinge for even baking, a wide tray-base and rim for batter overflow, two natural-wood handles, a heat indicator, and detachable cord set. The waffle iron is finished in chromeplate and bakes a 7-in. waffle.

Ted Kaplan Heads Radio Sales in Apollo Territory

NEWARK—Ted Kaplan has been named radio representative in Essex and Hudson counties, New Jersey, for Apollo Distributing Co., Crosley distributor for Newark. Fred Goldberg, treasurer of the company, stated recently.

New G-E Toaster Will Sell for \$3.45

SCHENECTADY—General Electric Co. recently introduced the Newport, new 470-watt, 115-volt Hotpoint toaster of modernistic design. The toaster is listed at \$3.45.

The appliance has a black satin and chromeplate finish. Features are concealed terminals, black "textolite" handles for raising and lowering the basket sides which automatically turn the toast, and detachable cord set.

Prices of G-E Sunlamps Are Reduced

BRIDGEPORT, Conn.—The list price of two models of G-E sunlamps has been reduced according to officials of the merchandise department of the General Electric Co. here.

Model BM-2, the floor-type sunlamp with automatic timer has been reduced from \$64.50 to \$49.50, and model K, the flexible-neck, floor-type sunlamp, from \$19.95 to \$14.95.

New—
the Only Completely Automatic
DEFROSTER

At last it's here—the kind of coil defroster you knew some day would come. It's the new ALCO FROSTOFF. Completely automatic, it cuts off the current once every 24 hours—just long enough for defrosting—on any make of electric refrigerator.

Simply plug the ALCO FROSTOFF into the socket now used by the refrigerator, and connect the refrigerator plug to the ALCO FROSTOFF. That's all. No installation trouble or cost. No attention or servicing thereafter. If it ever does fail to function, only defrosting stops—refrigeration is NOT affected.

The ALCO FROSTOFF does away with opening and emptying refrigerator for defrosting—food has continuous protection, too. Does away with all servicing due to too infrequent defrosting. It cuts operating costs 25% and assures more constant temperature because coils are never thickly covered with frost that acts as insulation. It assures ice cubes 100% of the time—and trays never stick.

Simply, ruggedly built. Approved by underwriters and leading refrigerator manufacturers. Fully guaranteed.

DEALERS - DISTRIBUTORS: Millions are waiting for the new ALCO FROSTOFF. Homes. Stores. Hotels. Restaurants. Dairies. Breweries, etc. Write at once for particulars and prices.

ALCO VALVE COMPANY
2628 BIG BEND BLVD.
ST. LOUIS, MO.



ALCO FROSTOFF

REFRIGERATION NEWS

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DETROIT, MICHIGAN, MARCH 13, 1935

Copyright, 1935, by
Business News Pub. Co.LIBRARY THREE DOLLARS PER YEAR
TEN CENTS PER COPYCabinet Sales
In Commercial
Field Show GainCommercial Refrigerator
Sales Total of 25,174
Boxes Up 32%

CHICAGO—Manufacturers of commercial refrigerator cabinets, display cases, and market coolers sold a total of 25,174 boxes valued at \$10,836,410 during 1934, according to records compiled by the Commercial Refrigerator Manufacturers Association and released to ELECTRIC REFRIGERATION NEWS by Paul H. Sullivan, executive secretary of the association.

The commercial refrigerator industry registered an increase of 32 per cent over number sold during 1933 when the records showed sales of 19,015 boxes. Dollar volume of sales was 41 per cent ahead of 1933 when total dollar value was reported at \$7,656,000.

The tabulation below shows the number of various types of cabinets sold during 1934 together with dollar value:

	No.	Value
Top Display Cases.....	7,866	\$3,356,300
Double Duty Cases.....	8,675	4,569,375
Sectional Coolers.....	3,760	1,794,985
Portable Boxes and Miscellaneous.....	4,923	1,115,750
Total	25,174	\$10,836,410

The figures were derived from combining monthly reports by members of the CRMA and non-member reports made under code regulations and adding estimates for unreported volume.

Stewart-Warner '34
Profit Is \$571,968

CHICAGO—The annual report of the Stewart-Warner Corp., released last Wednesday, shows the company to have operated at a profit during 1934 for the first time since 1931.

Consolidated net income for 1934 after all charges including depreciation and federal taxes, was \$571,968, equivalent to 46 cents a share on the 1,246,847 shares of common stock outstanding in the hands of the public, as compared with a loss of \$1,791,060 in the year ended Dec. 31, 1933.

The report discloses that not only has the new management of the company turned serious losses into a modest profit, but that substantial improvement in the balance sheet position has been registered. Current assets at Dec. 31, 1934, totaled \$6,043,179 including cash of \$1,024,084, against current liabilities of \$1,155,324 or a net working capital of \$4,887,855, as compared with a net working capital of \$3,750,926 at the close of 1933. Working capital ratio at Dec. 31, 1934, was 5.23 to 1, as compared with 3.60 to 1 at Dec. 31, 1933. All bank loans have been paid off.

Consolidated net sales for the year 1934 were \$17,075,344 as compared with \$9,920,226 for 1933, an increase of \$7,155,118 or 72.1 per cent. While sales

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Vice President



W. PAUL JONES

W. Paul Jones New
F-M Official

CHICAGO—W. Paul Jones, formerly advertising and sales promotion manager of Servel Sales, Inc., has been elected vice president and a director of Fairbanks-Morse Home Appliances, Inc., manufacturer of Fairbanks-Morse electric refrigerators, radios, and other major appliances.

The announcement was made Saturday by S. T. Kiddoo, vice president and treasurer of Fairbanks-Morse & Co., parent corporation of Fairbanks-Morse Home Appliances, Inc.

Before joining Servel in November, 1929, Mr. Jones was the Frigidaire distributor in Evansville, Ind. His first position with Servel was that as educational director, in which he traveled throughout the country holding sales schools.

In August, 1930, he was appointed advertising and sales promotion manager, and in that capacity served for four and one-half years.

Fedders Offers Coils
On 'Package' Basis

BUFFALO—To simplify the engineering and installation of air-conditioning systems in which its equipment is to be employed, Fedders Mfg. Co. has announced a complete line of standard catalog sizes of cooling and dehumidifying coils in capacities from 1 to 100 tons, thus putting its air-conditioning coil line on a "package merchandise" basis.

Seventy-five coil sizes for jobs ranging from 1 to 100 tons capacity are listed and described in the new Fed-

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Commercial Refrigerator
Code Budget \$29,270

WASHINGTON, D. C.—The code authority for the commercial refrigerator industry has submitted an application for approval of its proposed \$29,270 budget, for the period of Jan. 1, 1935 to Dec. 31, 1935. The basis of assessment is one-fifth of one per cent on net sales payable monthly.

Industry's Sales
For January Set
New High MarkTotal of 103,500 Units
2.7 Times Above
1934 Figure

By A. J. Cutting

DETROIT—Evidence that industry manufacturers were making no idle prophecy in anticipating that 1935 would be the best year in history is shown by the new all time high January sales figure of 103,500 units estimated by ELECTRIC REFRIGERATION NEWS for the opening month of this year.

This year's January figure is 2.7 times the 38,000 units estimated for January of 1934 and is only 14 per cent less than the total of 120,500 refrigerators for January and February of last year combined. It is also 2.6 times the previous high for January when 39,400 units were sold in that month of 1932.

The early demand upon manufacturers from distributors and dealers indicates that the sales outlets are taking no chances of being found unprepared in the event of heavy wave of consumer buying during the spring months such as was experienced in the opening months of 1934.

Reports from the Refrigeration Division of the National Electrical Manufacturers Association show that 14 member companies sold 93,367 to distributors and dealers throughout the world during January for the best January in the association's history. For 1935 the Nema reporting roster includes Apex, Crosley, Frigidaire, General Electric, Gibson, Kelvinator, Leonard, Norge, Servel, Stewart-Warner, Sunbeam, Uniflow, Universal Cooler, and Westinghouse.

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Larkin Opens New
Plants & Expands
Line of Coils

ATLANTA, March 13—After many months of preparation, Larkin Refrigerating Corp. this week is introducing its 1935 line of refrigeration and air conditioning coils, which will be the most comprehensive line in the company's history. At the same time it is announcing the acquisition of additional factories in New York City and Chicago to handle production of the line which has been expanded from 124 to 756 regular models.

The plant in New York is located at 102 Fifth Ave. and the Chicago plant at 325 S. California Ave. These factories are equipped to construct any cross fin type of coil, and consulting engineers at these plants will work on engineering problems involving coils not included in the regular Larkin line.

According to Lester U. Larkin, vice president of Larkin Refrigerating Corp., a number of new developments

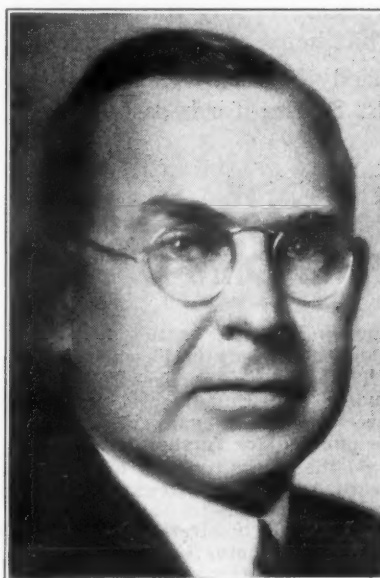
(Concluded on Page 8, Column 1)

Ohio Dealer Duped into
Selling Refrigerators
To Macy & Co.How Macy's Obtain Bootleg Appliances Disclosed in
Investigation of Sales of Frigidaire Dealer

By George F. Taubeneck

NEWARK, Ohio—With the disfranchisement of Dwight Holland, crack Frigidaire dealer in this thriving Ohio city, the mystery of how R. H. Macy & Co., New York City's largest department store, has been able to obtain Frigidaires, Kelvinators, and other nationally advertised refrigerators, cut the prices and punch holes in the bottom of the market has begun to clear up.

Reports Sales Increase



FRANK S. MCNEAL

Universal Cooler Sales
For 5 Months \$1,610,168

DETROIT—Universal Cooler Corp.'s sales in dollar volume for the period from Oct. 1, 1934 (the start of its fiscal year) through February, 1935, totaled \$1,610,168, compared with \$368,523 for the same period of 1933-34, reports Frank S. McNeal, general manager.

Shipments made during the period totaled 31,178 units, against 4,683 units during the same period last year, an increase of 666 per cent. Shipments during February numbered 13,280 units.

Mr. McNeal assumed management of Universal Cooler Feb. 1, succeeding the late Geoffrey M. Johnston.

Westinghouse Presents
New Water Coolers

MANSFIELD—Westinghouse Electric & Mfg. Co. is introducing three new water coolers this year, featuring a "Streamline" exterior design and some major mechanical refinements.

The new coolers are catalogued as models SP-4, FWP-8, and FWP-14. All models will be housed in a sheet steel cabinet, finished in black Dulux, and measuring 15 5/16 in. wide, 15 9/32 in. deep, and 42 15/32 in. high.

These cabinets are somewhat narrower than other Westinghouse water cooler models, and have a recessed sub-base which prevents scarring of the panel.

In models FWP-8 and FWP-14 the typical "pre-cooler" (where the waste water from the bubbler is used to pre-cool the incoming water) has been eliminated.

A new type of cooling is employed whereby the incoming water lines are

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General Electric Holding
Water Cooler Meeting

NEW YORK CITY—General Electric Co. is holding its first water cooler meeting for distributors here today (March 13), under sponsorship of the company's commercial refrigeration division.

The meeting will be an all-day affair.

Mr. Holland has told to ELECTRIC REFRIGERATION NEWS the entire story of how he had been duped into selling 143 Frigidaire 1935 models to two men in Columbus for supposed use as prizes in a radio contest, and how, after these jobs accumulated in a Newark warehouse, shipments were made by truck addressed to Macy's in New York City.

Last Friday the big Macy store was selling Frigidaire Standard 3's, 4's, and Master 6's, although this store is not an authorized Frigidaire dealer. Model D3, normally retailing at \$99.50 was offered first for \$93.50. Then, when the Bloomingdale department store met this price, Macy's pushed it down to \$87.50.

R. H. Macy & Co. has built its huge business on its famous policy of selling for cash at "six per cent less" than other stores. They faithfully promise to undersell by 6 per cent any store in town. To dramatize this point, Macy's likes to obtain nationally advertised products with well-known standard prices, knock its 6 per cent off, and shout these cut prices to the world.

Other New York department stores generally meet these new prices, whereupon Macy's lops off 6 per cent more, and the circle continues until the market for that product is pretty well lacerated.

It is for this reason, perhaps, that Macy's is understood to have the franchise for but two refrigerators—Leonard and Liberty.

Last fall, however, both Kelvinator and Frigidaire models suddenly appeared on Macy's floor, with the customary 6 per cent reductions. Frigidaire's standard "4" model, retailing at \$116.50, was hammered down to \$84.95 at Macy's by the price-cutting process mentioned previously.

Neither Frigidaire nor Kelvinator knew how Macy's was obtaining these refrigerators. Their serial numbers having been burned or chiseled off, they could not be trailed back to the source of supply from which they were bootlegged.

To get back to the story of Dealer Holland:

Toward the end of 1934 Mr. Holland received a call from C. N. Smith of the M. & M. Sales Co., Cleveland distributor for Zenith radios.

Smith had been calling on Holland for a number of years as the Zenith representative. Holland had implicit faith in the integrity of this field man.

So when Smith brought to Holland's store a stranger, Clarence Baird of the Auto-Radio Service Co., Columbus, who wanted to place a nice order for four truckloads of Frigidaires, Holland accepted Baird and his order in good faith.

The refrigerators, Baird said, were to be used as prizes in a radio contest by a national firm. They would not be sold outside Holland's territory, but were to be given away to radio listeners all over the United States. Week-by-week they would be shipped, a few at a time, out of the Newark, Ohio, warehouse where they would be stored in the meantime.

Holland ordered and sold to Baird 143 Frigidaires, hauled them from Dayton to Newark in his own truck in four loads, unloaded them into a Newark warehouse, and pocketed the money paid him. He was paid some cash, but generally it was with a cashier's check made payable to, and endorsed by, the C. N. Smith Sales Co.

Instead of following out this cock-and-bull story, Baird proceeded to turn refrigerators over to Art Greer of Greer's Custom Tailoring Shop, Columbus. Greer claims and confesses to be a bonded representative of the

(Continued on Page 2, Column 1)

St. Louis Leads All Cities in Number of
Air-Conditioning Installations in 1934

By T. T. Quinn

ST. LOUIS—This city, with 150 installations reported, led the entire United States in the application of air-conditioning equipment during 1934, according to figures compiled by ELECTRIC REFRIGERATION NEWS in a nation-wide survey made among power companies serving the principal metropolitan areas.

St. Louis' 1934 applications of air conditioning were almost half of the city's present total of 321, and brought it second, behind New York City, in total number of systems now in use. New York City's installations through 1934 total 335, but only 73 of them were reported last year.

Philadelphia, where air-conditioning installations are also on the increase, reported 149 installations during 1934 to rank second to St. Louis nationally for the year.

Most notable gain in St. Louis last year, in number of installations, was in private homes of the city. Seventy

comfort cooling systems were installed during 1934, to eclipse by 12 the number reported in all preceding years. Thirty-four installations had been made in 1933.

A second classification to register a notable increase in the use of air-conditioning equipment last year was offices, 33 installations being reported, compared with a total of 40 prior to that time. Another field in which air conditioning made rapid strides was in retail stores, 10 installations during 1934 comparing favorably with 15 in all previous years.

Sales and display rooms also increased their applications of cooling systems, with seven installations last year when before that time only 10 installations had been reported. So, also, did restaurants and bars, seven installations of cooling systems going one over the number in use in establishments of this type before 1934.

A number of unusual installations were reported in the city during 1934,

probably the most striking of which was the complete air conditioning of the Socony-Vacuum Oil Co.'s Lubrite filling station on Lindell Blvd. This is thought to be the first use of air conditioning in this classification in the middle west, if not in the entire country.

The Lubrite Co.'s office building, adjacent to the filling station, was also fitted with a complete year-round air-conditioning system, the only office building to be so equipped during the year.

Other novel uses to which air conditioning was put during 1934 include an airport, two banks, two beauty parlors, a brewery, a country club, a hospital, a laboratory, a library, a printing plant, two undertaking establishments, and two radio broadcasting studios.

Most obvious explanation of St. Louis' rush for air-conditioning equipment during 1934 is the fact that the

(Concluded on Page 13, Column 3)

The Cast of Characters in this Involved Bootlegging Story

THIS story on how Macy's department store in New York City obtains bootleg Frigidaires is necessarily quite involved. The trail was purposely made complicated and intricate by the bootleggers, so that their operations couldn't be traced; and now that it's all unravelled and the mystery explained, readers may find themselves getting confused somewhere in the story.

Hence the NEWS presents the cast of characters for ready reference:

DWIGHT HOLLAND is the Newark, Ohio, Frigidaire dealer who was duped into selling 143 Frigidaire household units to Macy agents.

C. N. SMITH is the field man for M. & M. Sales Co., Cleveland distributor of Zenith radios, Gibson refrigerators, and automotive supplies, who first approached Holland with the offer, and who introduced Clarence Baird to Holland. After obtaining the Frigidaires, Holland was paid with a cashier's check made out to, and endorsed by, the C. N. Smith Sales Co.

CLARENCE BAIRD is the proprietor of the Auto-Radio Service Co., Columbus, who (along with Smith) told Holland he wanted to buy Frigidaires for use as prizes in a radio lottery.

ART GREER is the manager of a Columbus tailoring shop who claims to be a bonded representative of R. H. Macy & Co., who retained Baird to purchase Frigidaire household refrigerators for him, and who turned title to the Frigidaires over to Macy's when he received the title from Baird.

Smith, Baird, nor Greer were working openly for Macy's—all had connections with other firms. That helps make it complicated.

Others who enter the story briefly are H. W. Newell, vice president in charge of sales, and R. S. Bradford, district representative of the Frigidaire Corp.

Investigation Shows How Macy's Bought Bootleg Appliances from Ohio Dealer

(Continued from Page 1, Column 5)

R. H. Macy & Co., and admits that he in turn passed title to the refrigerators on to Macy's.

As a result of this get-the-goods-however-you-can policy of a New York department store, one of the best small-town refrigerator dealers in the United States—whose sin was that he was gullible—has lost his business, one which he has been building for the last five years, just at the beginning of what promises to be its most prosperous selling season.

When the editor of ELECTRIC REFRIGERATION NEWS heard about the renewed outbreak of price-cutting on Frigidaires by Macy's, he called Frigidaire headquarters in Dayton to find out if it was known how Macy's was obtaining these units.

A guarded voice replied that he thought he had heard someone say

that one of the bootleg dealers had been caught—up in Newark, Ohio.

The speaker, apparently operating under the time-honored Frigidaire "we won't talk" gag rule, could not be pumped for further information.

So the editor took off his long gray beard, put on a battered old hat and smoked glasses, traded a pipe for a package of cigarettes, and turned reporter—hopping a train within half an hour for the scene of action.

Holland, his wife, and a girl clerk were in his small electrical shop in Newark when the reporter arrived Friday evening.

There were a dozen Frigidaires on the floor, half a dozen Zenith radios, some Easy washers and ironers, and an assortment of small appliances made by Westinghouse, General Electric, Robinson Rochester, and Landers, Frary & Clark.

Chief feature of this long, narrow showroom was a small, partitioned-off alcove about the center of the room.

In this cubicle were a porcelain 6-cu. ft. Frigidaire, a Frigidaire room cooler (hooked up), and a comfortable divan. It is here, undisturbed and uninterrupted by store traffic, that Dealer Holland closes his sales.

On the walls of the cubicle were plaques proclaiming Holland to be a member of the BTU Quota Club in 1932, 1933, and 1934. There was also a framed certificate, signed by H. W. Newell, vice president in charge of sales, and Frank Pierce, sales manager of the Frigidaire Corp., indicating that Holland had been awarded a 21-jewel Hamilton Tycoon watch in recognition of his becoming a Frigidaire sales leader.

Holland was broken-hearted. He was nervous as a prisoner waiting for his jury to return a verdict. Claimed he hadn't slept for three nights, and showed every evidence of being altogether miserable.

For five years, he said, he had been building a nice business in Frigidaire household and commercial refrigeration. Now—just because he had "trusted a couple of pals on a deal that netted me only about \$2.50 a box"—he had lost his franchise, his reputation, and his credit standing.

He didn't think it was a bit fair, but what could he do about it?

Holland recently renewed a three-year lease on the shop he occupies, and at the same time took a three-year lease on the shop next door.

In this next-door location he has been preparing to install an all-electric kitchen and display commercial refrigeration equipment.

It would be impossible, he said—after outlining the story of how he had been tricked into bootlegging 143 Frigidaires for Macy's—for him to take any other franchise.

"I've burned my bridges behind me," he explained. "For five years I've been telling people that if I couldn't sell Frigidaire products I wouldn't be in the refrigeration business, that nothing could force me to sell any other make. I'd be the laughing stock of the town if I took on another franchise—providing I could get one."

An old subscriber to ELECTRIC REFRIGERATION NEWS, Holland allowed his subscription to lapse last summer.

When the reporter pointed out that if he had been reading the NEWS regularly he might have known what was going on in the world and not been trapped by his own ignorance, he cried:

"But I did know about the Macy business. My district representative, Bradford, warned me at the first of the year to look out for Macy buyers."

"I even asked Smith and Baird if Macy's had anything to do with this deal, but they both swore that no, it was for this radio lottery. Smith had gone out of his way to make deals right, so I took his word as gospel."

According to the Ohio Power Co., Holland sold 42 per cent of all the refrigerators installed in Licking county, Ohio, last year. General Electric, Kelvinator, Grunow, Leonard, Norge, Westinghouse, Sparton, Coldspot, and Apex are also represented.

This season he has made 25 installations. Most of the jobs he sells are porcelain boxes in the larger sizes. He made one \$3,100 commercial installation—in the Licking County Tubercular Hospital.

R. S. Bradford, Frigidaire district representative in Holland's territory, whom we found pretty well tucked out in a not altogether luxurious Newark hotel, doesn't want to be quoted on anything. He played a role in the tragedy, however, and it's hard to keep his name out of it.

When the third full truckload of Frigidaires was ordered out by his Newark dealer, Bradford thought something must be rotten in Denmark (or Holland, to be more exact.)

Dwight Holland was a good dealer, and all that, but for him to get delivery of 150 refrigerators in the first two months of the year was cause for raising an eyebrow, at least.

So he went to Holland and asked for a list of his 1935 installations. Holland gave it to him, and it had about a dozen and a half names.

"Ha!" thought Bradford. "What did you do with the rest of them?" he inquired mildly.

"Oh, they're down here in Phil Vogelmeier's warehouse," answered Holland. Remember the trouble I had getting deliveries last season? Well, I'm taking no chances this year. I'm going to have my supply.

"Besides, wasn't that the big point you made at the last convention?" he continued. "You told us to order early, order plenty, and warehouse 'em."

That was right, Bradford admitted. They had stressed that warehousing idea. So he went over to the Vogelmeier warehouse. The refrigerators were there, all right.

Inasmuch as Holland had sold more than 160 units last year, it seemed fairly reasonable that he was justified in warehousing 150 at the beginning of the current season.

And then one day a Frigidaire field man happened to be sitting in the office of a northern Ohio dealer. Baird came in and wanted to order several hundred Frigidaires—at a price.

Cross-examining Baird to find out where the refrigerators were going and where the money was coming from, the dealer finally exasperated Baird so much that he exclaimed:

"I'm buying these for Macy's department store in New York, and I've got the cash handy!"

With a herculean effort the Frigidaire field man kept from falling off his chair.

"Mister," the utility man told Baird, "we have the Frigidaire franchise for a restricted territory only. We can't sell to anybody in New York City."

"Whaddayamean, you can't?" blustered Baird, now thoroughly nettled. "I just bought 143 boxes from a dealer down in Newark."

In practically no time at all this information had been communicated to Bradford, and he hot-footed it to the Holland Electric Shop.

Representative Bradford met a highly agitated star dealer. Holland now knew all about the Macy deal but had been too scared to report it. He had been down to the warehouse and seen a truckload of those refrigerators start out for New York.

The truck's driver, a friend of Holland's, showed him his instructions on the destination of his load.

Holland read:

R. H. Macy, Inc.
4744 West 31st St.
Long Island City
New York
c/o F. K. Klein

Holland, according to his story, was frantic. He raced over to Columbus, and was forward passed from Smith to Baird to Greer—after getting a ticket for speeding from Columbus police.

The latter appeared mightily surprised that the whole transaction hadn't been bona fide, and seemed entirely sympathetic with Holland's predicament.

He had merely commissioned Baird to buy some refrigerators at a good price, Greer said, and had no notion that he might cause anyone trouble.

No, he couldn't prevent the merchandise from being shipped to New York. Macy's held title to the entire warehouse lot of 143 refrigerators, and could order them sent wherever they pleased.

"Can you buy them back?" pleaded Holland, desperately.

"Well, I'll try," promised Greer. "Give me some money for my expenses, and I'll fly down to New York and try."

Holland states that he gave Greer \$85, of which \$13.50 was for "holding the boxes in the warehouse and insurance." The rest was to be used for the New York trip. Later he got the \$13.50 back.

A couple of days later Greer told Holland that his mission was unsuccessful.

According to Holland, who thinks Greer is a pretty nice fellow, Greer told him he was "sick of the whole business," and that as soon as he had cleaned up a couple of other deals, he was going to be "all washed up" with Macy's.

Then came the news that Holland was to lose his precious Frigidaire franchise. That was where we came in—to find an utterly dejected, nervously upset, wildly apprehensive, thoroughly penitent young man.

"The only time I ever lied to

Frigidaire in all my association with them," he almost sobbed, "was when Bradford asked me why I had so many units in the warehouse. Although—as I understood it—these jobs were to be given away, not sold, I still felt there must be something wrong about them going out of my territory, and thought I had better cover that up."

"I swear to God I had no idea, at the time that they were headed for Macy's."

Overflowing with sympathy for this young man who it appeared had been duped by the cold machinations of a far-off group of slick merchandisers, your reporter chased over to Dayton.

H. W. ("Hike") Newell, Frigidaire vice president in charge of sales, was sympathetic too, but adamant nevertheless.

"I can't do a thing for him," he frowned. "Holland was one of the best dealers in the country and we're sorry he has been caught in such a jam."

"Our dealers have all been given full and fair warning about this bootlegging situation, and if they're too dumb to smell a rat when they get a big order from a mysterious source, why, it's just too bad, that's all. Mr. Holland's case ought to be a lesson to every dealer in the country."

C. N. Smith resides at 979 Sunbury Road, Columbus. That's a very fine place to reside. His neat brick home is poised at the top of a commanding hill, and is many weary steps from a waiting taxicab.

Your reporter caught Mr. Smith just as he was about to go to bed.

"By golly," he blurted after we had told him our mission, "do you know that monkey business almost cost me my job?"

It is Mr. Smith's contention, however, that he is as blameless as a new-born babe in the whole affair, and apparently he succeeded in convincing his superiors of his innocence. He had just finished thrashing it all out over the phone with the M. & M. sales manager and treasurer in Cleveland a few moments before our arrival.

Clarence Baird, it seems, is—or was—an old friend of Smith's. Baird runs the Auto Radio Service Co. at 138 E. Gay St., Columbus. Smith has been selling Baird auto radios, and recently Smith was influential in getting Baird appointed to handle Zenith service in Columbus. That contract, however, will be cancelled, Smith insists.

According to Smith, Baird told him he had been made an agent for a Battle Creek, Mich., cereal firm to buy a number of Frigidaires, radios, and Maytag washing machines at less than the market price. The breakfast food company was to use these refrigerators and radios as premiums in a nation-wide contest to be conducted by radio.

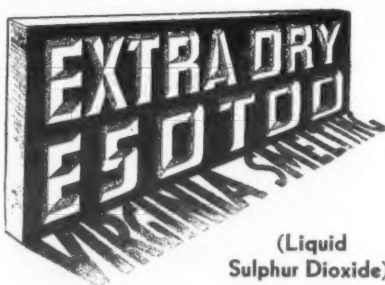
Baird wanted to make contact with a big Frigidaire dealer who would be able to get a good price on some 200 Frigidaires, whose credit would be good for them, and who would be willing to sell this large order at a comparatively small profit per box.

Immediately Smith thought of young Holland over in Newark.

"He had been a darned good customer on Zenith," Smith said, "and I

(Concluded on Page 4, Column 1)

The Sahara Desert Is no Drier Than



Absolute dryness is secured by our own exclusive patented process and equipment and every step in production is constantly under rigid technical control.

An effective way of assuring customer-satisfaction is to standardize on EXTRA DRY ESOTOO—the purest, the safest liquid sulphur dioxide for domestic refrigeration!

Interesting information is yours, via the coupon; so mail it now.



VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

F. A. Enstis, Sec'y, Virginia Smelting Co., 131 State St., Boston, Mass.
Send me the literature I have checked. I am interested in receiving any additional literature on Electrical Refrigeration you may issue from time to time.

☐ Folder: Extra Dry ESOTOO (Liquid Sulphur Dioxide) ERN-3-13-35
☐ Folder: V-METH-L (Virginia Methyl Chloride)
☐ Folder: Transferring from large to small cylinders
☐ Circular: Physical properties of various refrigerants

Name
Street & No.
City & State



Copeland

DEPENDABLE ELECTRIC REFRIGERATION

MAXIMUM FOOD STORAGE

All the attributes required in a modern refrigerator are embodied in the 1935 Copeland Domestic line.


Beauty, Style, Convenience, and Dependability at a reasonable list price are the offerings of Copeland distributors this season.

The 1935 Cabinets are finished in lustrous white lacquer, 4.5, 5.5, 6.6, and 8.8 cubic feet net Storage Capacity. The interiors provide maximum food storage because of the absence of little used accessories which reduce net storage space.

The Copeland Commercial line is a splendid companion to the household department and levels off seasonal peaks and valleys so that, for the entire year, Copeland distributors report "good business right thru".

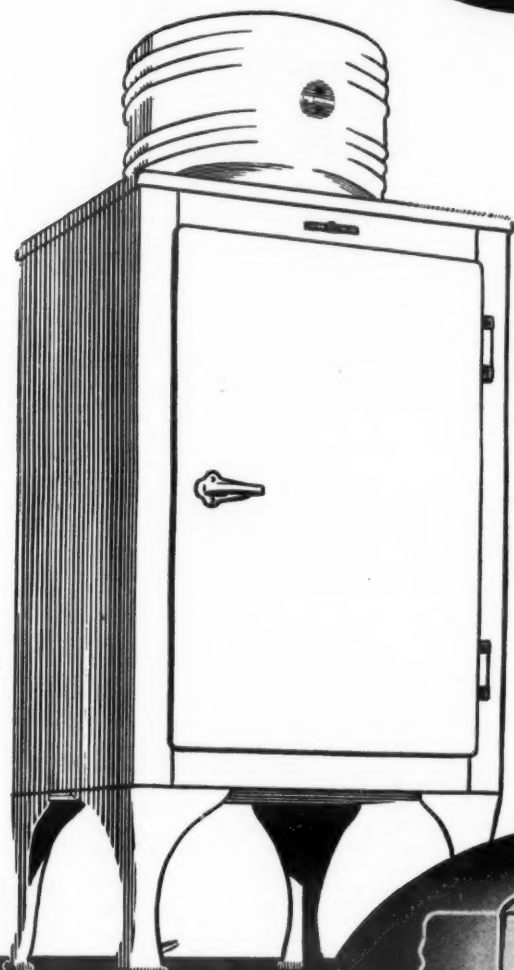
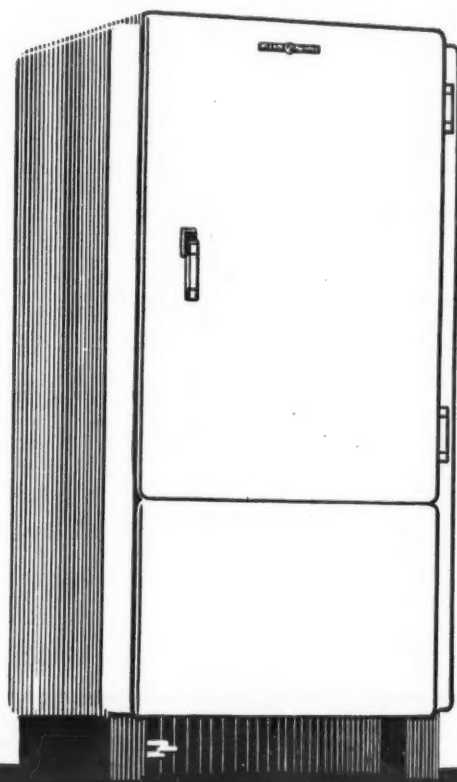
Full details of the Copeland distributing franchise available on request. Send for them NOW.

COPELAND REFRIGERATION CORP., DETROIT, MICH.
Main Office and Factory: Holden Ave., at Lincoln
Division of DALLAS E. WINSLOW, Inc.



The mechanism that defies time

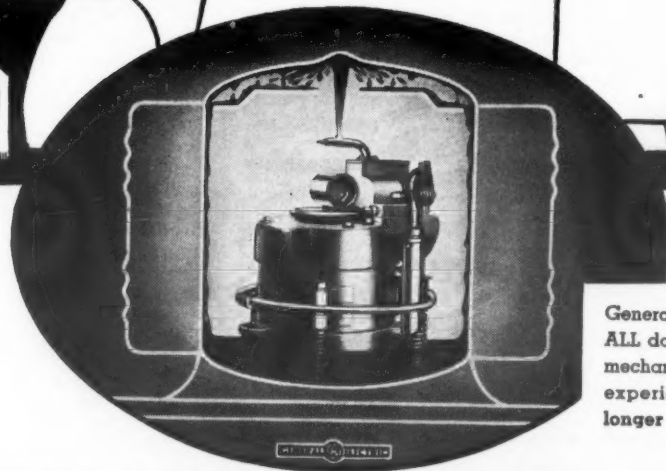
NOW IN ALL 3 TYPES!



*monitor top
flatop
liftop*



Famous G-E Monitor Top hermetically sealed-in-steel mechanism now available in all 3 types of General Electric refrigerators



General Electric believes that eventually ALL domestic refrigerators will have sealed mechanisms. The public is learning from experience that sealed machines last longer and the operating cost is lower.

THE Monitor Top mechanism has won for the General Electric the greatest public preference of any refrigerator. Its amazing record of dependable year after year performance at low cost is enthusiastically praised by owners everywhere. *It outweighs in sales value all other refrigerator features combined.* 60% to 70% of the purchaser's investment in any electric refrigerator is in its mechanism. How capably it performs year after year without attention determines its real value. That's why General Electric has placed the emphasis where it belongs—on the performance of the mechanism.

This year will see a rediscovery of true refrigerator values. The refrigerator with a proved record of dependable year after year performance will have the preference. This year General Electric's entire sales

program is featuring the unmatched performance record of the world-famous G-E hermetically sealed refrigerator mechanism.

In magazines, newspapers, on billboards, over the radio, in window and store displays, in sales literature, General Electric dealers are telling their prospects—*"Look to the mechanism!"—"Performance counts!"—"It Costs less to own a dependable refrigerator!"—"Gadgets are of little value without dependable performance!"—"60% to 70% of your investment is in the mechanism!"* The campaign is already getting the kind of results all refrigerator dealers hope for.

PERFORMANCE sells the most refrigerators and pays the greatest net profits! Write or wire for details of the G-E franchise. General Electric Co., Specialty Appliance Sales Dept., Sec. DF31, Nela Park, Cleveland, O

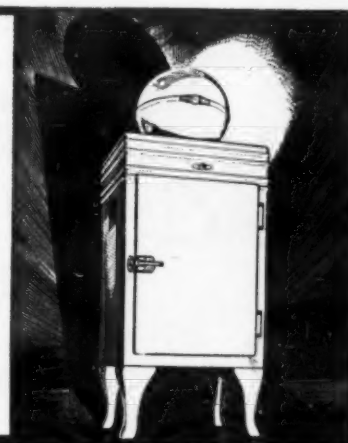
5 YEARS

PERFORMANCE PROTECTION

In addition to the standard 1 year warranty, 1935 G-E refrigerators carry 4 more years protection on the matchless sealed-in-steel mechanism for \$5... *five full years for only \$1 a year!*

**A NEW
Monitor Top model
at a new low price!**

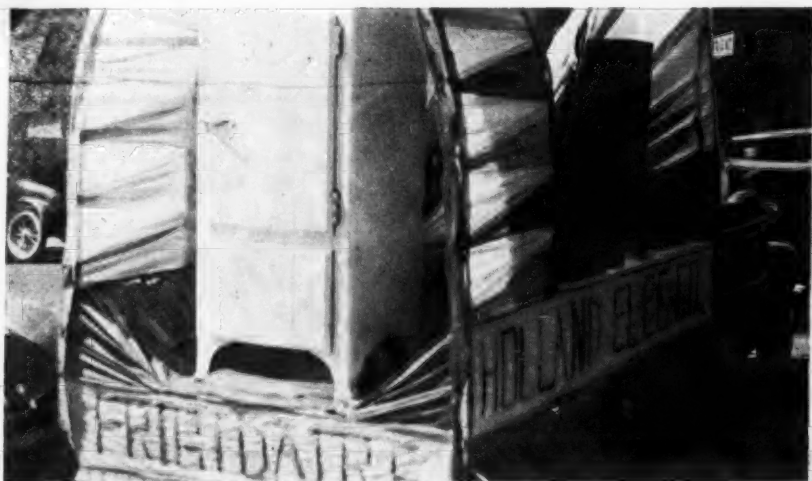
Specially designed for small homes and apartments, the new General Electric Monitor Top refrigerator model X-4, priced amazingly low, opens up a still greater market for G-E dealers! Carries 5 Years Performance Protection on the sealed-in-steel mechanism for only \$5.



GENERAL ELECTRIC

ALL-STEEL REFRIGERATORS

Disfranchised Frigidaire Dealer; Other Principals in Macy Affair Are Camera Shy



(1) Conveyance in which Dealer Holland carts Frigidaires around Newark, Ohio, for display purposes. (2) Holland and his wife indicate that what's happened to their carefully-built refrigerator business is making life very serious, indeed. (3) We can't prove that the gentleman whose back is shown partly at the left is C. N. Smith, but that Terraplane is the car we saw him drive up to (4) Clarence Baird's Auto-Radio Service Co. in Columbus. A few minutes after this picture was taken the editor was run out of this establishment by the hard-boiled Mr. Baird.

How Macy Obtained Frigidaire Models to Sell for Lower Price

(Concluded from Page 2, Column 5)

thought this would be a good break for him. At the same time, I thought, it should help cement our relationship. So I brought Baird and Holland together.

"Not until it was all over and too late to do anything about it did I learn that Baird had not taken me into his confidence about the Macy angle of it.

"Then I met Art Greer, the Macy man who had appointed Baird a field purchasing agent for Macy's."

"Baird, I learned, got a 5 per cent rake-off on all purchases he made for Macy's. He told me he had bought 1,400 Philco radios, for instance. He couldn't get them from the Columbus Philco distributor, but went elsewhere and obtained them in smaller lots.

"He was in the market for 1,100 Frigidaires, and I don't know how many Maytags."

At the Greer Tailoring Co., 308 Brunson Bank Bldg., Columbus, a courteous young fellow left a customer he was measuring up for a new worsted suit to explain that Mr. Greer had phoned he "wouldn't be down this morning," that he was home ill.

And so he was. Mrs. Greer explained that "Art" had had a terrific headache all night and that he wasn't feeling a bit well.

Mr. Greer corroborated this, and declared that his "mind simply wasn't functioning today," and that he preferred not to discuss the Holland case.

When told that the reporter already had the story, that he had interviewed practically all the principals in the case except himself and Baird, and that he expected to see Baird after lunch, Mr. Greer shouted:

"You go ahead and print whatever

you please about this. But remember, it's on your own responsibility!"

At 11:55 a. m. Saturday, Clarence Baird was not in his establishment at 138 E. Gay St., Columbus, the Auto-Radio Service Co. The attendant said that Baird was out to lunch, and that he undoubtedly would be back that afternoon.

Returning shortly after 2, the News reporter approached the Auto-Radio Service Co. just as C. N. Smith drove up to the place in a Terraplane.

"Haven't you left town yet?" scowled Mr. Smith, who seemed about as happy over finding the reporter there as he would have been over seeing a boa constrictor at the front door.

At a safe distance, Mr. Smith followed the reporter inside.

This fellow Baird is a tough baby. He must be around six feet tall, and weigh about 200 pounds. He was in an ugly mood.

"Yes," he growled, "I've heard all about you. You're the fellow who thought he had an appointment with me this afternoon." (Evidently Greer had warned him of the reporter's intent.)

"I have nothing to say to you. Now get out! Is that plain? Do I make myself clear? Get out!"

In his hand was a tool which boded no good for the small camera in the reporter's hand, nor did it seem healthy around there for the reporter himself.

Although Smith had declared himself "all washed up" with Baird, he apparently had things to talk over with him, for he stayed on with Baird after the reporter left.

Baird's "appointment" crack and Smith's arrival made it seem obvious that the three men who were directly responsible for leading Holland into the Macy trap are still in close touch with one another.

According to townspeople, Baird lives very well indeed, and is considered something of a spender. He has an exceedingly attractive and charming wife, many years younger than he, who is quite acceptable in the smarter social circles of Columbus.

When Jack North, manager of the

Electrical League of Cleveland, was phoned for information about Smith and his employers, the M. & M. Co., he was most non-committal.

He knew practically nothing, it seemed, about either. Yes, he admitted reluctantly, he had heard something about some monkey business in connection with Macy's, but he couldn't say if the M. & M. people were involved.

When pressed with more specific questions, Mr. North barked.

"I can't tell you anything. How do I know you're George Taubeneck?"

And there, by golly, he had us. How do you prove, when you're phoning from a strange hotel room, that you are yourself?

EARNINGS

Westinghouse Electric & Mfg. Co. Westinghouse Electric & Mfg. Co., in its annual report to stockholders made public March 11, showed a profit for 1934 of \$189,562, compared with net losses of \$8,636,841 for 1933.

Sales billed for 1934 totaled \$92,158,893, compared with \$66,431,591 for 1933, an increase of 39 per cent. Orders received totaled \$106,473,226, a gain of 47 per cent over the 1933 figures of \$72,473,117.

Unfilled orders at the end of the year amounted to \$34,085,921, compared with \$26,954,044 on Dec. 31, 1933.

Better business was reported by all principal divisions of the company, the report says, and billings for the year were substantially above those of 1933. The total, however, was only about 50 per cent of the company's average volume in the years preceding the depression.

Operations were therefore burdened during the year with a large unused plant capacity. Plants producing the heavier apparatus normally required by the public utility companies operated throughout the year at a load much lower than the 50 per cent average, the report says.

The improvement in earnings during 1934, officers of the company state, is due to increased production and shipments of the year, to better operating results arising from changes in plan of organization, and to continued attention to the betterment of operations.

On Dec. 31, 1934, current assets amounted to \$80,328,712, and current liabilities to \$6,122,180, a net working capital of \$74,206,532, and a ratio of current assets to liabilities of 13 to 1. This compares with a working capital of \$69,708,232 and a ratio of 17.3 to 1 at the close of 1933.

The company's net investment in land, buildings, and equipment was \$66,748,593 on Dec. 31, 1934, compared with \$66,386,809 at the close of 1933. Provision for depreciation applied to the reserves during 1934 were in excess of capital expenditures, but a contingency reserve of \$2,797,917 previously included in the fixed asset reserves to provide for extraordinary losses on retirement of plant and equipment, has this year been included with the miscellaneous reserves of the company.

The increase in total assets as a result of this accounting transfer is therefore offset by a corresponding increase in miscellaneous reserves.

The company has no bank loans or bonded indebtedness outstanding. There has been no change in the amount of its issued capital stock.

During the year, dividends of \$3.50 a share, totaling \$279,919, were declared and paid on the preferred stock of the company.

Borg-Warner Corp.

Borg-Warner Corp., parent corporation of Norge Corp., for the year ended Dec. 31, 1934, had a net income of \$3,750,576 after charges, against a net income of \$1,196,270 in 1933. This was equivalent to \$3.06 per share of common stock, as compared with 84 cents the year preceding.

Stewart-Warner Shows Profit of \$571,968 During 1934

(Concluded from Page 1, Column 1)

increased sharply, the management in the annual report point out that the year was one of extremely severe competition with low prices generally prevailing throughout the industry, and that the profit obtained for the year was largely due to continued efforts to curtail overhead expenses. Advertising, selling, and administrative expenses, it is pointed out, were \$900,000 less in 1934 than in 1931, with sales \$2,450,000 greater than in the earlier year; and were reduced to 17.79 per cent of sales in 1934, as compared with 26.83 per cent in 1931.

Commenting in the annual report on the operations of the company during the year J. S. Knowlson, chairman of the board, and Joseph E. Otis, Jr., president, stated:

"It is gratifying to report that not only did the corporation as a whole make a profit for the year 1934, but that the Bassick Co. of Bridgeport, Conn., The Stewart-Warner-Alemite Corp. Canada, Ltd., and the Stewart Die Casting Corp., all operated on a profitable basis.

"Sales to automobile car factories increased 70.1 per cent over 1933 as compared with reported increase in automobile sales to the public of only 43 per cent. Sales to Alemite distributors increased 39 per cent over 1933, and sales of Alemite products for industrial purposes were nearly equal to the peak period of 1928. Farm implement manufacturers are also using Alemite systems as regular equipment in increasing volume and our sales to this class of trade increased 127 per cent in 1934 over 1933.

"Increase of sales in these various fields is of particular interest, because in the field of automobile products there is a continued trend towards concentration of manufacturing into

a smaller number of manufacturing companies. Thus the problem of the manufacturer of automobile accessories is made more difficult because of the decreasing number of manufacturers in the automobile business.

"Because of this fact, your directors are keenly alive to the advisability of expanding the sales of your company in other fields. It is with this feeling, that the scope of the company's activities should be enlarged, that your directors have continued the Refrigerator and Radio lines which they inherited from the former management.

"Both of these lines showed large losses for 1934, but offsetting this is the fact that these losses included a substantial amount of overhead which would otherwise diminish the profits credited to other activities.

"Throughout the year these two lines have received careful study and attention. Starting with entirely new units and the necessity of building a distributing organization almost from the ground up, your company has produced models which have gained widespread dealer acceptance and have proved themselves excellent in performance."

Total sales of the Stewart-Warner Corp. and its subsidiaries for the first two months of 1935 exceeded those of the same period of 1934 by over 30 per cent, and it is pointed out by the management that if these improved general conditions continue, the results shown by the company for the year 1935 should be materially better than in 1934.

Palais Royal Dept. Store New Crosley Dealer

BALTIMORE — The Palais Royal, department store, and the Colony Radio Co. were recently appointed dealers for Crosley electric refrigerators in Washington, D. C., according to C. Howard Buchwald, president of the Lincoln Sales Corp., Crosley distributor for Baltimore.



As strong as the whole

Like links in a chain cable, of which every link must be equal in strength, are the fittings used to link together the operating parts of automatic refrigeration installations.

The fittings used in automatic refrigeration are only little things, yet their duty to an entire installation far surpasses any consideration of size, appearance or cost.

Upon these little fittings rest a share of responsibility for success of the entire installation and it is therefore of paramount importance that pipe and tube fittings be . . .

1. Seepage proof.
2. Correctly machined to insure perfect seating.
3. Accurately threaded to make leak-proof joints.
4. Carefully packed to reach the fitter in unmarred, unscarred condition.
5. They must be, in a phrase
BUILT RIGHT—TO STAY TIGHT

Ever since the birth of automatic refrigeration, Commonwealth Brass Fittings have met all these requirements to the complete satisfaction of leaders of the industry.

COMMONWEALTH BRASS CORPORATION
Commonwealth at G. T. R. R.
DETROIT, MICHIGAN



CURTIS
AIR CONDITIONING UNITS
7½ H. P., 10 H. P. and 15 H. P.
4 Cylinder Condensing Units

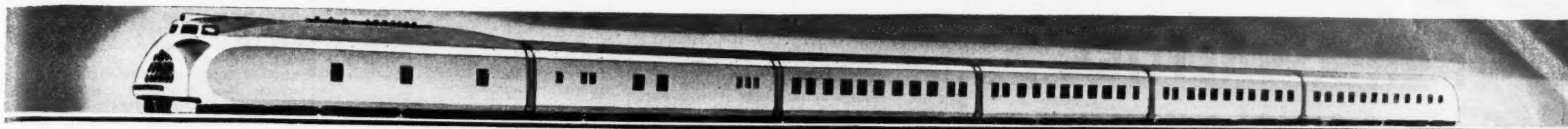
With the fast growing popularity of Air Conditioning and the approach of the peak demand for this application, the completeness of the Curtis line has put Curtis distributors in an enviable position.

Some desirable territories are still open for reliable distributors.

81
SUCCESSFUL
YEARS
ESTABLISHED
1854

Proven Design
Financial
Stability

CURTIS CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 Kienlen Avenue, St. Louis, U. S. A.



Streamlined Selling

IN EVERY PRICE CLASS



Check these
MARVELOUS NEW
selling features

- ★ **REVOLVING SHELF**
Amazing new convenience and increased accessible storage space!
- ★ **EJECT-O-CUBE ICE TRAYS**
All-metal trays eject ice cubes instantly with easy lever action!
- ★ **BUTTON-TOUCH DOOR LATCH**
Opens door instantly... easy to operate, even with both hands full!
- ★ **DIAL TEMPERATURE SELECTOR**
New radio-dial control gives seven economical freezing positions.
- ★ **TRIPLE-STORAGE COMPARTMENT**
Separate storage space for vegetables, fruits and dairy products.

with the Westinghouse one quality line!

Streamlined trains, planes, and motor cars make faster headway because wind-resistance is cut down. Westinghouse dealers, with the 1935 "Streamline" refrigerators and selling plans make profits faster because sales resistance is cut down.

No matter what price each prospect can pay, there's a refrigerator in the complete Westinghouse line to meet the exact requirements. Every one, Westinghouse quality from top to bottom, inside and out! Every one equipped with the PERFECTED Westinghouse hermetically-sealed, dual-automatic mechanism! Every one built to maintain

the Westinghouse record of leadership in owner satisfaction!

"Trading up" is easier with the new Westinghouse Streamline De-Luxe and its surprising new features—yet Westinghouse also gives you values in the lower price groups that challenge all comparisons.

And with the new 1935 Westinghouse line comes the most complete, convincing, hard-hitting sales promotion activity in Westinghouse history. Write, wire or phone for full details of the 1935 selling program.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
Refrigeration Dept. 44 Mansfield, Ohio



5 YEARS' PROTECTION

for you and your customers on the sealed-in unit of EVERY Westinghouse model. Cost, included in price, only \$5—a dollar a year.



Westinghouse

Streamline REFRIGERATORS

PERSONALITIES

By George F. Taubeneck

Congratulations, Paul!

It is with genuine pleasure that the NEWS announces the appointment of W. PAUL JONES, former Servel advertising manager to the vice presidency of Fairbanks-Morse Home Appliances, Inc.

We have been in reasonably close contact with Mr. Jones for some five years, and have had the opportunity to watch him at work and play in several cities and under many and varied circumstances. Without a doubt he is as clean, honest, and square-shooting a fellow as you'll find in the refrigeration industry.

More than that he is extraordinarily likeable, and is unusually adept at "getting along" with people and working harmoniously with his associates. We have never heard anybody say a single unkind thing about him—and that's unusual in this highly competitive industry. His record as a man seems to be without blemish.

Humdinger Distributor

Paul Jones was one of the first independent Frigidaire distributors in the country, and I have heard Frigidaire officials say that he was a humdinger.

V. E. VINING, who is now in charge of department store sales for Westinghouse, and who was then Servel's sales manager, found Jones so aggressive and successful a competitor in Servel's home town, Evansville, that he induced him to relinquish the distributorship and join Servel as advertising manager.

He has had that position ever since, and has been widely respected and admired for the fine job he has done—particularly in consideration of the small budgets and other handicaps which were handed him.

Col. FRANK E. SMITH, deceased, former president of Servel, once stated in our hearing that in all his experience (and he had been president of many big companies, including the old Maxwell Motor Co., Republic Truck Co., and General Motors Truck Co.) Mr. Jones was the most capable advertising manager he had ever seen.

HERBERT H. SPRINGFORD, who was until recently chairman of the board of Servel, and who has been president of such corporations as Steel & Tubes, Inc., and Youngstown Sheet & Tubes, has expressed the same opinion.

It is significant that throughout the various vicissitudes of Servel, Mr. Jones retained his position—when successive managements were "sweeping clean with new brooms."

Among other advertising managers and sales promotion managers of the industry Mr. Jones stands ace high. I have heard EARL DOTY of Frigid-

aire, WALTER DAILY, formerly of General Electric, VANCE WOODCOX of Kelvinator, GIL BAIRD of Westinghouse, and JIM STERLING of Norge all speak highly of him at one time or another.

His direct mail campaigns have achieved considerable recognition, and his magazine, newspaper, and business paper campaigns have all been praiseworthy.

He seems to be a student of details, and because of the limited means at his disposal, has had to do much more of the actual work and drudgery than many advertising managers in the industry.

He is particularly skillful in aiding and advising distributors in their advertising problems, and did a great deal of this work for Servel when its household electric refrigeration business was emphasized.

Fairbanks-Morse has acquired a good man.

A Couple of Letters From the A.S.R.E.

Two men high in the councils of the American Society of Refrigerating Engineers have written us letters of the type that F. M. COCKRELL once would have had copied on garish salmon-colored paper and labelled "Complaint" in 72 pt. Cooper Bold type.

One is from a fellow we like.

The fellow we like is GLENN MUFFLY, who is a past president of the A.S.R.E., and one of the industry's leading consulting engineers. In his capacity as general chairman of the Joint Committee on Rating Commercial Refrigerating Equipment, he writes to correct a story the NEWS ran on the new Standard Method of Rating Condensing Units.

Muffly's Correction

Mr. Muffly advises that the draft of the new Standard Method of Rating Condensing Units, as published in the Feb. 27 issue of ELECTRIC REFRIGERATION NEWS was one of the preliminary drafts and not worded exactly like the official document.

Paragraph 4 (b) should read as follows:

"The saturated vapor temperature shall be determined by the suction pressure as measured at the suction inlet connection to the condensing unit."

This new standard method was adopted by the Council of the American Society of Refrigerating Engineers in December, as a Tentative Standard. It has also been adopted by the Refrigerating Machinery Association and it has passed the Refrigeration Division of Nema on the way to being formally adopted by Nema.

The Joint Committee is now working on a proposed Condensing Unit Test Procedure to accompany the Method of Rating, and is holding its last meeting March 6 in Cleveland.

It is a very active committee, holding meetings at intervals of from four to eight weeks. It has other projects, such as the Rating of Air Conditioner Units, on its agenda.

Representative Committee

The committee is quite representative of all interests concerned with the new standards on which they are working, as will be seen from the membership, as follows:

General Chairman: Glenn Muffly.

Secretary: Chester Lichtenberg.

Representing the American Society of Refrigerating Engineers, sponsor of the Joint Committee:

Chairman: Glenn Muffly, Springfield, Ohio; W. R. Woolrich, Tennessee Valley Authority, Knoxville, Tenn.; Frank R. Zumbro, Frick Co., Waynesboro, Pa.

Representing the Refrigerating Machinery Association:

Chairman: Louis S. Morse, York Ice Machinery Corp., York, Pa.; Alvin H. Baer, Carbondale Division of Worthington Pump & Machinery Corp., Harrison, N. J.; Willis H. Carrier, Carrier Corp., Newark, N. J.

Representing the National Electrical Manufacturers Association:

Chairman: Harry M. Williams, Frigidaire Division of General Motors Corp., Dayton, Ohio; L. A. Philipp, Kelvinator Corp., Detroit, Mich.; Chester Lichtenberg, General Electric Co., Fort Wayne, Ind.

Representing the Unit Air Conditioner Manufacturers' Association:

Chairman: D. E. French, Carrier Corp., New York City; Louis S. Morse (also representing R.M.A. as chairman of that organization's sub-committee); Harry M. Williams (also representing Nema as chairman of that organization's sub-committee).

In addition to the membership listed above the committee has been assisted by:

Mr. J. L. Gibson of Frigidaire as alternate for Mr. Williams; Mr. W. E. Zieber of York assisting Mr. Morse; Mr. W. F. Jones of Carrier assisting Mr. French.

This Time the Joke Is on Nema

In his letter (which he asks us not to print), Mr. Muffly conjures all sorts of sources from which we might have obtained the story on the new Standard Method of Rating Condensing Units. None were correct.

The text of this "method" as printed in the Feb. 27 issue was the one adopted by the Refrigeration Division of the National Electrical Manufacturers Association at its February meeting in New York, at which the writer was present. HALDEMAN FINNIE, able manager of the division, gave us the copy which was published in ELECTRIC REFRIGERATION NEWS.

So the joke is apparently on Nema, for adopting something which hadn't been finished. Anyway, everybody concerned—including Mr. Finnie (the best association man to come along in years)—thanks Mr. Muffly for bringing it up-to-date.

Oh Hell!

As for the other fellow, we'll print his letter here before taking care of him. It follows:

The American Society of Refrigerating Engineers
37 West 39th St., New York City

Editor: You seem to have quite missed the point of the recent correspondence I had with you.

Mr. Millar thought he had an honor to confer when he inquired of me who might take up the work last done by Dr. Stevenson as historian for his group. I thought so too, and would have liked to do the job myself (forgive my saying so, in view of your own great modesty). When I declined in your favor I hardly expected you to react in the role of the ballyhooist trying to extract yet another dollar from the sucker.

For the record, let me say I am writing Mr. Millar the apologies due him from both of us.

I am sending this air mail to make your next issue.

DAVID L. FISKE,
Executive Secretary.

Answer: Our reaction to this letter is much the same as it frequently is after we finish something Mr. Fiske has written for the A.S.R.E. publication: What in the world is he talking about? Below is the letter Mr. Millar wrote us, our reply, and his answer to the reply. Apparently Mr. Millar and ELECTRIC REFRIGERATION NEWS are in perfect accord. For what, then, is the excitable Mr. Fiske apologizing?

Electrical Industry History

Association of Edison Illuminating Companies
80th St. and East End Ave.
New York City

Editor:

To signalize its fiftieth anniversary this association is planning to prepare and issue a history of the electrical industry. On the subject of refrigeration we have a reprint of a Franklin Institute paper of 1928 by A. R. STEVENSON, Jr., of the General Electric Co.

This is a starter. Can you indicate where we might turn for authoritative material as to the origin and growth of electric refrigeration, or would you be willing to supply material of this nature which might be worked into the book by an editor? We want a suitable account in text, illustrated, if desired, and we want to stress the public service character and the social significance as well as the engineering features.

PRESTON S. MILLAR, Secretary.
Answer: Your plan to issue a history of the electrical industry on the occasion of the fiftieth anniversary of the Association of Edison

Illuminating Companies sounds most interesting.

For historical material on the electric refrigeration industry we can think of no better source than the files of ELECTRIC REFRIGERATION NEWS, which has faithfully recorded the progress of this remarkable branch of the electrical industry since September, 1926. I trust you have a complete file in your office. If not, bound volumes may be had at the price of \$3.00 a volume (each volume contains all issues of ELECTRIC REFRIGERATION NEWS issued during a period of four months).

The Sept. 12, 1928, issue contains considerable historical material on the origins and early development of electrical refrigeration, and the Sept. 5, 1934, issue contains a Digest of the Corporate History of the Electric Refrigeration Industry—which includes a wealth of material on the pioneers of the industry, and an extraordinarily complete record of the manufacturers which are not now in the business.

Association of Edison Illuminating Companies
80th St. and East End Ave.
New York City

Editor:

Thank you very much for your letter of Feb. 27 referring me to historical material regarding the refrigeration industry. This is very helpful and is much appreciated.

PRESTON S. MILLAR, Secretary.

The Officious Mr. Fiske

For a long time we have been accustomed to accepting Mr. Fiske's not infrequent wild-tangent idiosyncracies, smiling through our tears, and hoping it will all come out all right some day. But sometimes we get pretty darned tired of the patronizing efforts so frequently attempted by the elongated schoolboy who sits in the A.S.R.E. secretary's chair.

The first time we saw Dave Fiske he was wearing knickers and pouting, and the impression of Fiske the Overgrown Schoolboy has never left us. It was at the A.S.R.E. convention in Kansas City in 1931, and JACK SCHAEFER and the writer were trying to take some pictures of the meeting and various society personages. With a great show of authority, Fiske prevented us from entering the room.

Later we attempted to obtain some of the papers presented at the meeting. Fiske issued executive orders that we were not to touch any of the papers. He even objected to our obtaining a list of those present!

Not until we were forced to go over his head to the real powers of the society, such men as GEORGE BRIGHT, GLENN MUFFLY, and A. R. STEVENSON (all past presidents of the society) were we able to get anything—and then we were given papers, pictures, the attendance list, and everything, much to Fiske's disgust.

For a long time we have had a feeling that the A.S.R.E. needs somebody at the headquarters office who has outgrown his childhood.

Wait Till THIS Copy of the News Gets to the Frigidaire Offices!



When the editor dropped in on the Frigidaire offices in Dayton last Saturday morning, he found a number of the company's executives looking over the latest issue of the News. "Hmmm," thinks Household Refrigeration Sales Manager Charles T. Lawson, "this Norge 'Freedom of the Shes' show certainly must have its good points—it's sure packing 'em all over the country." (2) "Wonder if that shipment for the St. Louis distributor will get there in time to keep him going?" (3) W. D. McElhinny, commercial refrigeration sales manager, tells a distributor over the telephone that orders for the new "flowing cold" compressors have piled up so high that he'll have to wait two weeks for his shipment.



(1) Jim Irwin, Frigidaire publicity man, meditates on some new way to get Frigidaire mentioned in Brisbane's column. (2, 3, 4, and 5) Patti Chapin, latest Frigidaire radio discovery, who sings on the Jack Pearl "Peter Pfeiffer" series of broadcasts. Patti decides that, since she's in the business, she might as well find out what's going on—so she gets interested in the News. (6) Frank Pierce, general sales manager, smiles that, while, Patti is admittedly charming, she's not fooling him any about her knowledge of refrigeration, even if she has read the News.

Follow the Man who reads the METER



The SOCIAL REGISTER of AMERICAN BUSINESS

A partial list of Important Advertisers in The American Weekly
during 1933, 1934 and 1935

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Kotex Company
Kraft-Phenix Cheese Corp.
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Pond's Face Powder
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Reynolds Tobacco Co., R. J.
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Union Oil Co. of California
United States Rubber Co.
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Wander Co., The
Warner & Co., Wm. R.
Watkins Co., The R. L.
Welch Grape Juice Co.
Western Company
Whittemore Bros. Corp.

What \$16,000 buys in The American Weekly

A full page in color more than twice the size of any other magazine page in the world . . . more than 5,500,000 families at a cost of less than 1/2 of a cent per family . . . The attention of the entire family instead of a single buying factor.

Ice cubes are no longer a novelty to the rich, but seventy-five per cent of America's electrically wired homes still have an ice card in the window.

If you want to know where to sell electrical refrigerators, radios, vacuum sweepers, washing machines or any other electrical household equipment, follow the man who reads the meters.

For the information of manufacturers, there is one publication that concentrates 78% of its circulation in those 439 richest counties wherein are located 74% of this country's electrically wired homes. That publication is The American Weekly—mightiest of all magazines.

The next largest magazine, with less than half The American Weekly's circulation, finds only 73% of its readers in these important counties.

To SELL in volume, you MUST reach PEOPLE in volume.

For \$16,000 you can buy a great color page in The

American Weekly and put your sales message into more than five and one-half million homes located in the richest buying areas of the nation.

At a cost of less than one-third cent per family you can address the greatest possible number of buyers through the pages of what is, editorially speaking, the most interesting magazine in the world.

Where this Magazine goes

The American Weekly is the largest magazine in the world. It is distributed through 17 great Hearst Sunday Newspapers. In 597 of America's 995 towns and cities of 10,000 population and over, The American Weekly concentrates 67% of its circulation.

In each of 134 cities, it reaches one out of every two families
In 125 more cities, 40 to 50% of the families
In an additional 165 cities, 30 to 40%
In another 173 cities, 20 to 30%

. . . and, in addition, more than 1,885,000 families in thousands of other communities, large and small, regularly buy and read The American Weekly.

Where can you spend your advertising dollar more effectively?

THE AMERICAN Greatest Circulation in the World A WEEKLY

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COMMERCIAL REFRIGERATION

Larkin Expands Coil Line & Announces Several Innovations in Construction

(Concluded from Page 1, Column 3)
in Larkin coil design and construction have been incorporated in the new models.

Every Larkin coil is now built with staggered tubing. With staggered tubing in the coil, Mr. Larkin claims, the air passing through the average coil comes in contact with a maximum amount of tube surface. Increased contact of air with the tubes, declares Mr. Larkin, materially increases the amount and speed of heat transfer, increasing the back pressure and resulting in decreased operating time and lower cost of operation.

Another development in Larkin coils is the "Inrfin" (internal fin), which is now incorporated in every tube of every Larkin coil. This type of construction is designed to meet the problem of overcoming the difference which is said to exist between the exterior tube (prime surface) temperature and the internal gas temperature.

This temperature difference, says Mr. Larkin, results from an oil film, or skin surface of bubbles, which covers the inner wall of the tube and materially retards the transfer of heat from the tube wall to the gas inside the tube.

The problem, in the minds of Larkin engineers, was to break this film and conduct the heat directly from the

inner wall of the tube to the relatively lower temperature existing in the central area of the tube.

Larkin's answer was the designing and fabricating of an internal fin of metal which is forced into the tube. This internal fin has an inherent spring pressure forming a metal-to-metal contact with the inside of the tube. The "Inrfin" lies along the side walls and bottom of the tube, and is said to break the film which previously existed.

It is perforated so as to allow free passage of the liquid and gas from one segment of the tube to the other.

A refinement in the application of silver solder in bonding return bends to the tubing is claimed by Larkin this year. The joints on the new Larkin coils are not merely silver soldered, but the return bends themselves are flared and the flanges are expanded to a depth sufficient to give to the coil a silver solder bond which Larkin guarantees to be stronger than the tubing itself.

The return bend has a full opening which permits free flow of gases with a minimum of restriction.

Larkin silver soldered joints permit the continuance of the use of hairpin bends which in turn allow the retention of the continuous fin. (One fin to embrace all the tubes used in a coil), which has long been one of Larkin's big features.

Realizing that it is essential to embody maximum efficiency in the coils for air conditioning applications and that in the majority of cases these coils must be of a particular size for a particular application, Larkin has installed in its factories equipment which enables them to build into its air-conditioning coils all of the previously described special features.

To meet varying applications and demands, Larkin now offers three new separate and distinct lines. These are known as the New 100 Per Cent Line, the Intermediate Line, and the Standard Line. The Larkin features of staggered tubing, "Inrfin," imbedded fin-to-tube contact, guaranteed silver soldered bond and continuous fin are embodied in all three lines.

According to Mr. Larkin, the company is announcing substantially reduced prices along with the introduction of the new line.

The new Larkin catalog is now being mailed to the trade.

Frick Book Explains Use Of System on Ships

WAYNESBORO, Pa. — Frick Co. recently issued an 8-page, illustrated booklet on "Frick Refrigeration Afloat." Illustrations point out installations of Frick equipment that have been made in U. S. navy vessels, dredges, a Norwegian trawler, a Japanese fishing boat, a Honolulu fishing boat, a cargo vessel, and a passenger vessel.

Safety, reliability, and economy are the features discussed.

Motor Sales Firm Handles Norge in Benicia, Calif.

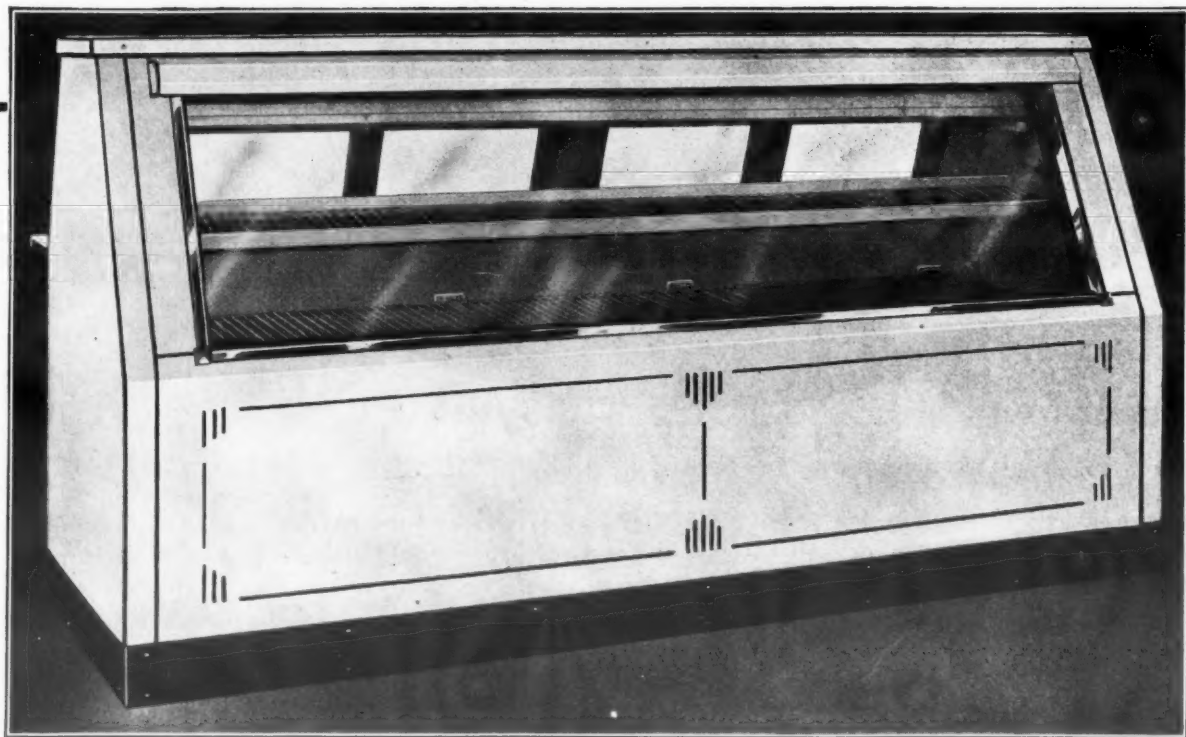
BENICIA, Calif.—Norge refrigerators are being retailed here by the recently established Benicia Motor Sales & Electric Co., with W. H. Cook in charge.

Commercial Business Booms



Edward R. Legg (left, seated) manager of Kelvinator's national business division, and Harold Priest (standing), assistant manager, examine some of the orders that totaled \$250,000, the result of a commercial sales drive under the direction of J. A. Harlan during the last week in January.

The PUFFER-HUBBARD LINE of Commercial Cases

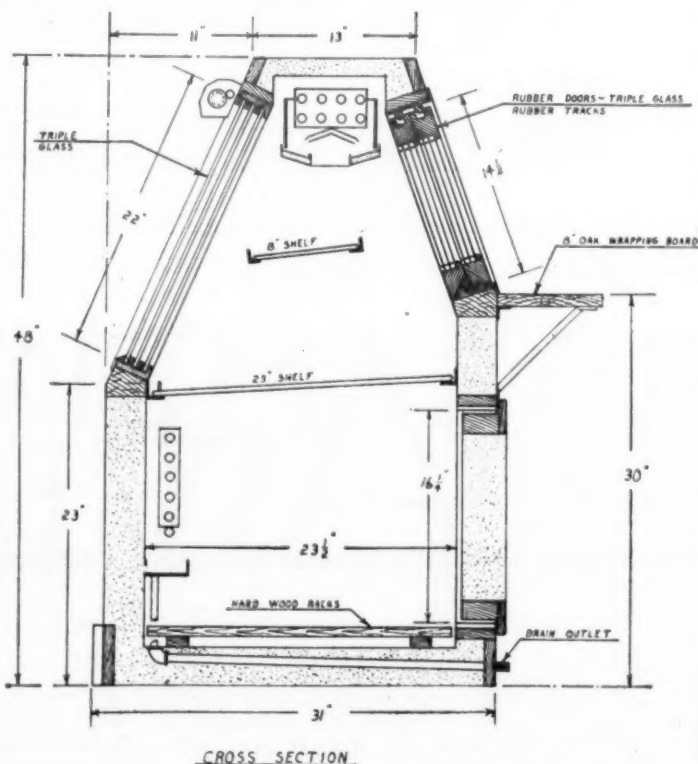


NO. 800-S and 800-SP - FRONT VIEW

PUFFER-HUBBARD CASES are Available Through Accredited Refrigeration Distributors and Dealers **ONLY**, under Franchise. Eliminate Competition. Sell a Complete Installation — the Case and the Compressor. The Puffer-Hubbard Line is Priced Right.

There is Profit in a "Package" Job

PUFFER-HUBBARD MFG. COMPANY
MINNEAPOLIS MINNESOTA



Most Foods Keep Best At About 34°-36° F. Survey Shows

NEW YORK CITY—During shipping and storage of fish, meats, and vegetables, fixed conditions must be maintained with regard to temperature and humidity to hold the quality, writes Harry Stiner, of Los Angeles, in an article, "Protecting Commodities with Temperature and Humidity Control," published in the March issue of *Food Industries*.

Meats (except cured meats) and poultry, according to Mr. Stiner, should be shipped in refrigerated carriers held between 34 and 36° F., unless frozen, when 0 to 10° F. should be maintained.

Fresh, unfrozen fish and related forms, except when alive, should be shipped at a temperature between 32 and 35° F., he writes. When frozen, these products require shipping temperatures from 0 to 5 or 6° F. Pickled fish should be held between 32 and 35° F. during transit. Live lobsters, turtles, and crabs should be held at 34 to 35° F. while shipped.

With regard to storage Mr. Stiner says the usual carrying temperature for unfrozen meat and poultry is 34 to 35° F. When frozen, the temperature is first reduced to -6 to -18° F., but is later held between 0 to 10° F. Frozen meats held below 10° F. will keep more or less indefinitely, but are subject to loss of weight by gradual dehydration unless sealed or frozen in ice.

At 34 to 35° F. prime cuts of beef and heavy mutton may be held safely for three weeks, poultry for 10 days, lambs for 8 to 10 days and pork and veal for one week.

Fresh fish is regularly stored at from 32 to 34° F. When frozen the temperature is first reduced to -19° F., then later held between 0 and 5 or 6° F. At 32 to 34° F., fresh, unfrozen fish may be held safely for 10 days. Pickled fish should be held at 32 to 35° F.

When vegetables are shipped, humidity and temperature should be controlled says Mr. Stiner, to conform closely to storage requirements. Green vegetables require a humid atmosphere to retain freshness and when held in storage for any length of time should be closely controlled. Too much moisture will cause vegetables to rot prematurely.

Potatoes and dry onions are usually held around 34° F. A temperature of 30° F., writes Mr. Stiner, is considered dangerous for potatoes. Below 28° F. changes occur in potatoes which lower the grade.

Iowa Dairy Purchases Kold-Hold Truck

LEMARS, Iowa—A Kold-Hold refrigerated, corkboard-insulated truck body, designed and insulated to maintain temperatures of -20° to 0° F. in delivery service, was recently purchased by the Wells Dairy Co. of this city. The truck was built by Batavia Body Co. of Batavia, Ill.

York & Frick Units Supply Refrigeration For New Texas Dairy

SAN ANTONIO, Tex.—Refrigeration equipment for the new Borden Products Co. plant here includes three 5x5 York ammonia compressors and one 10x10 Frick compressor for brine.

A forced-air circulating-type cooling unit supplied by York is used in the milk-cooling vault and is automatically controlled to hold a temperature between 34 and 36° F.

Corkboard insulation 5 in. thick was used in the chill room, cheese room, print room, anteroom, and cold storage room. A thickness of 10 in. was installed on the floor of the hardening room, 9 in. on the walls, and 8 in. on the ceiling. Granulated cork was used in conjunction with 6-in. corkboard for insulating the ice freezing tank.

Interior finish specified for the cold room was asphalt plastic finish, treated with one coat of aluminum paint.

Celotex Introduces New Insulating Block

CHICAGO — The Celotex Co. has placed on the market a factory-sealed cold storage insulating block that is said to possess several advantages under the severe moisture conditions encountered in cold storage operation. The new product is known as Celotex vaporproofed low temperature insulation.

The sealed block is designed to provide consistent moisture protection. Vapor proofing is designed to overcome the hazard of moisture condensing in insulation voids.

Like other Celotex can fiber products, vaporproofed low temperature insulation is manufactured under the patented Ferox process and therefore effectively resists damage by fungus growth, dry rot, and termites.

The blocks are made in three sizes, standard 18x36 in. and half sizes, 18x18 in., and 9x36 in. for breaking and staggering joints. Available thicknesses include 1 in., 1½ in., 2 in., 3 in., and 4 inches.

Wyatt, Servel Field Man, Changes Territory

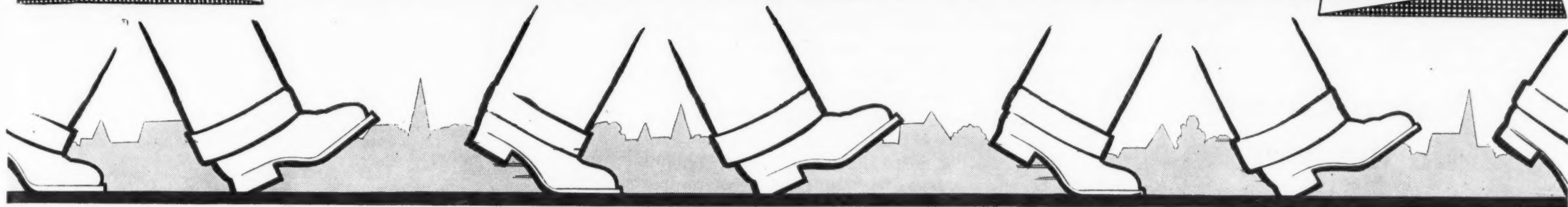
LOS ANGELES — W. T. Wyatt, for the past nine years a representative of Servel, Inc., in southern California, is now representing Electrolux Refrigerator Sales, Inc., in the southern states, with headquarters in Texas.

Boyer Handles McCray Line In Marion, Ill.

MARION, Ill. — J. W. Boyer of this city has been appointed distributor for McCray equipment under the St. Louis sales branch of McCray Refrigerator Sales Corp.

★ ★ ★ 7 ★ STAR SPECIAL ★ ★ ★

LARKIN - The Nations COIL LEADER
Now STEPS AHEAD Again with 7 giant
Forward Strides to HELP YOU!



NEW Sensational FEATURE STAGGERED TUBING

1 Staggered tubing construction has been incorporated in every LARKIN Coil after LARKIN engineers definitely proved, through unimpeachable tests that in the average coil the air actually comes in contact with twice as much tube surface when staggered construction is utilized than it does in old fashioned construction where one tube is built directly over the other.

Increased contact of air with the tubes materially increases the amount and speed of heat transfer which in turn increases the back pressure, resulting in decreased operating time and lower cost of operation.

NEW INRFIN (Internal Fin) Construction

2 The *INRFIN (internal fin), now incorporated in every tube of every LARKIN Coil ranks high among the outstanding developments in mechanical refrigeration. INRFIN solves the problem of overcoming the tremendous difference between the external tube (prime surface) temperature and the internal gas temperature.

We have definitely proven that the INRFIN materially increases the suction pressure—resulting in decreased operating time and lower cost of operation.

A LARKIN representative is ready to give you a most conclusive demonstration.

*Patent applied for.

All Joints SILVER Soldered

3 Never before has the use of silver solder in bonding return bends to the tubing been accentuated as it is in the new LARKIN Coil. Not only the joints are silver soldered, but the return bends themselves are flared and the flanges are expanded to a depth sufficient to give to the new LARKIN Coil a silver soldered bond which we guarantee to be stronger than the tubing itself. Not a single joint of the LARKIN Coil silver soldered by the current method has ever developed a leak.

The LARKIN return bend allows a full opening which permits free flow of gases with a minimum of restriction. LARKIN silver soldered joints permit hairpin bends allowing the coil to retain the efficiency of the continuous fin.

CONTINUOUS FIN MAINTAINED

4 The principle of employing a large amount of coil surface in proportion to that of the fixture in which it is installed is probably the most potent factor in the success of the LARKIN Coil. Another feature, proven equally valuable through exhaustive tests and field operation, is the continuous fin. Continuous fin means that each LARKIN Coil employs only one fin to embrace all of the tubes used in that coil. The exclusive LARKIN continuous fin assures conduction, whereas when individual fins are employed embracing only one tube, as in average coil construction, conduction is impossible and you are forced to rely upon convection currents only.

ANNOUNCING LOWER Prices

5 The result of LARKIN research and experience in the exclusive manufacture of refrigeration coils has developed a nation-wide volume. This, together with revolutionary developments in manufacturing processes, now enables us to announce important and substantial price reductions.

These great price reductions are in a measure possible because our adherence to the exclusive manufacture of refrigeration coils has permitted our engineering and research staff to concentrate their entire resources and talent towards product and production efficiency.

Increased LINES 756 MODELS

6 The LARKIN line now offers 756 regular models of coils over a previous 124.

In addition, to meet various demands and circumstances, we now offer three new separate and distinct lines:

THE NEW 100% LINE

THE INTERMEDIATE LINE

THE STANDARD LINE

LARKIN features of staggered tubing, INRFIN, imbedded fin-to-tube contact, guaranteed silver soldered bond and continuous fin are embodied in all three LARKIN lines.

now OPENED Factories at CHICAGO-NEW YORK

7 In the interest of greater service and quicker deliveries to distributors, dealers and users we now announce the establishment of two additional, fully equipped factories in New York and Chicago. Each factory has a staff of consulting engineers ready to help you with engineering problems involving special coils not included in our regular line.

Each factory is equipped to construct any cross fin type of coil for which there is a demand, including our complete line of 756 models. They are also equipped to fabricate to specifications air conditioning coils containing all the famous LARKIN features.

ORIGINATORS and
SOLE MANUFACTURERS
OF LARKIN COILS.



REFRIGERATING CORPORATION

CHICAGO
FACTORY
325 S. CALIFORNIA AVE.

GENERAL OFFICES & FACTORY
ATLANTA

NEW YORK
FACTORY
102 — 5TH. AVE.

YOUR COPY
SENT AT ONCE ON
REQUEST SENT ON
YOUR STATIONERY...



ELECTRIC REFRIGERATION NEWS

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VOL. 14, No. 11, SERIAL NO. 312, MARCH 13, 1935

'Drop a Quarter in the Slot'

THE industry now depends upon ELECTRIC REFRIGERATION NEWS to furnish complete specifications for all models of all makes of household and commercial refrigeration and air-conditioning equipment.

Letters have been coming in from distributors and dealers wanting to know when the 1935 specifications will be published. Questionnaires have been sent out so that every manufacturer will have an opportunity to provide official answers to a standardized set of questions about every detail of construction. With the questions are definitions and instructions for determining capacities and ratings according to accepted industry standards.

Thus ELECTRIC REFRIGERATION NEWS, the newspaper of the industry, collects, tabulates, and distributes the essential facts about every make of equipment from the complete lines and well advertised brands of the large manufacturers to the new and unknown products of recent entrants into the field.

There is no charge to the manufacturer for the publication of this data. Valuable publicity it is, of course, especially for manufacturers whose production is limited and whose distribution facilities are mainly local in character.

Annual 'Show Down' of Sales Features

But this free publicity is not all velvet. Not all manufacturers are favorable to the idea. Some of them would much prefer to avoid this annual "show-down" of construction details. They would rather not expose their products to this direct comparison of features.

But the publication of specifications in ELECTRIC REFRIGERATION NEWS has become an established practice and a valuable service to manufacturers, distributors, and dealers who have quality merchandise to sell and who are eager to meet the challenge of competition.

So great is the demand for this comparative data on sizes and capacities, parts and materials, features and prices that the glare of trade publicity puts the question mark on any manufacturer who fails to furnish complete and accurate information regarding his products.

Amateur Detectives No Longer Needed

Before ELECTRIC REFRIGERATION NEWS began to publish specifications, alert dealers and salesmen spent much time and used many devices to collect information regarding competitive equipment. In hundreds of offices all over the country scraps of information were laboriously pieced together so that salesmen could approach their prospects with some knowledge of what others were offering the public. That process was not only expensive but it encouraged irresponsible claims and unethical selling methods.

Now the information is available to all from a recognized and unprejudiced source. If any errors should creep into the record, they will be quickly noticed and as quickly corrected.

Now, every dealer and every salesman can obtain complete specifications on all makes and

types of equipment for the small sum of 25 cents. It is only necessary to drop a quarter in the slot of the coin card provided by the NEWS to get the full set of four issues containing this data and other interesting material designed and timed to help salesmen get going in earnest on their 1935 sales drive.

The 1935 specifications questionnaire has been revised to cover the new points of interest which have developed in refrigeration design and construction during the past year. Attention has been given, also, to the method of tabulating the data and a marked improvement in the arrangement has been effected. As a result it will be much easier to compare the corresponding figures on different models and makes.

New Kind of Sales Convention

In addition to specifications in the coming four special feature issues of the NEWS (March 20 and 27, April 3 and 10), a novel editorial presentation of 1935 "sales talk" will be introduced. In brief, the editors plan to hold an all-industry sales convention on paper. In carrying out this program, the editors will make a notable departure from the usual editorial policy in that advertisers will be given special recognition.

This does not mean that the editorial columns will be thrown open to "puffs" and "write-ups" of the kind which characterize so many trade papers. Furthermore, there will be no effort to mislead the reader by giving editorial sanction to advertising thinly disguised as news. But just the same, the advertisers are going to get a break. Frankly, we think they deserve it because it is a fact that the NEWS has often sorely tried the faith of its good advertisers by its continual emphasis upon news. The new event, the new company, the new product, the new man on the job, always gets the front page headlines while the old established, safe and sane, but uninteresting members of the industry go their way unnoticed. But, it must be admitted, many of these old reliables are the very ones who advertise regularly and make it possible for the publisher to turn out a newsy sheet and a first-class service to the industry.

So, we have a plan whereby the advertisers may have a chance to tell their story on the "stage" of this "sales convention" and do it under the sponsorship of the editor (and his camera). The April 10 issue has been designated for this new event. Advertisers are being coached about their "parts" on the program and due care will be taken to see that they "perform" for the reader-audience in worthy style.

Regular subscribers will have the privilege of being "admitted free" to hear this unusual array of industry talent. All others may gain admission by payment of only 25 cents. Elsewhere in this issue will be found further details regarding the coming series of four issues which are offered to all comers who "drop a quarter in the slot" of the coin cards now being distributed.

WHAT OTHERS SAY

Government Makes Way for Henry Ford

BACK in its early days when NRA was pitched to the heights of a holy crusade, the fervent administrator, Hugh S. Johnson, predicted "economic death" for industrialists who were without the Blue Eagle. The first major run-in the fiery general had with an important industrialist was with Henry Ford. Mr. Ford declined to sign the automobile code; his signature still is missing and no doubt always will be.

Mr. Ford is still doing business, a lot of it, selling cars that are Blue Eagle-less, and complying with all code provisions. The Government is now lifting its boycott on Mr. Ford. The executive order of March 14, 1934, requiring certificates of compliance, which in turn called for code signature, as a requisite to getting Government awards, is being modified so the Ford company can sell to the Government. War Department schedules for large quantities of trucks, sedans, and ambulances have been revised and sent out in anticipation of the forthcoming change in the executive order and clearly open the door for Mr. Ford to do business with the Government.

So Mr. Ford is in.

General Johnson is out.

The NRA has sagged from its old crusading heights to the depths of a snake's chin and the Blue Eagle truly has become a thunder-bird. What sort of transition has taken place in this much ballyhooed alphabetical agency?

Evolution?

Revolution?

Dissolution?—The Iron Age, March 7, 1935.

LETTERS

'She Done Him Wrong'

Monongahela West Penn Public Service Co.

Box 1041, Clarksburg, W. Va.

Editor:

In reply to your letter of Feb. 26, I am enclosing a cancelled check drawn in favor of "Vivian King" in payment of one year's subscription to ELECTRIC REFRIGERATION NEWS. Included is a so called "bonded voucher" of The Martin-Rosebury Co.

Through some statement of mine you seem to have the impression that this party was a man. The person to whom I paid this money was a girl probably between 20 and 22, decided blond, very attractive, well dressed, and whom I believe was married. She is not an amateur, her arguments being well chosen and well delivered. From what I can learn there was a crew of five or six in Clarksburg for a period of two or three days.

This same person accepted, endorsed, and cashed a check given her by Edgar Needham, in the sum of \$8.00 made payable to an agency in Columbus, Ohio. This check was post-dated but Mr. Needham paid the check because a personal friend had cashed it. I presume the endorsement was a forgery and I feel sure Mr. Needham will be very glad to cooperate in any way he can.

I wish to thank you for your most generous disposition of this matter and assure you that I shall be glad to do anything that I can to get a conviction if this person shall be apprehended.

T. M. McBROOM.

Frozen Foods Demise

Electric Bond & Share Co.
2 Rector St., New York City

Editor:

For a report to client electric utility companies, dealing with recent developments in refrigeration that may afford a market for electric power, we are collecting information on the frozen food industry.

In issue of your magazine for April 22, 1932, reference is made to Frozen Foods Association of America. This was headed by H. P. Stuckey, Director of Georgia Experiment Station, and attempted to bring together the various groups and interests then developing the industry. A rival organization was also spoken of.

We should be glad to learn whether the association is still in existence, and if so, the name and address of its president or secretary.

Articles published in your magazine between 1929 and 1931 shed considerable light on commercial difficulties then confronting the frozen food industry. Inasmuch as you discontinued the section dealing with frozen foods, in 1931, it is inferred that general interest waned, because of discouragingly slow progress. Information obtained personally by the writer from Mr. Gibson, president of Frosted Foods Sales Corp., indicates that the situation has not changed much since 1931. Your views as to outlook for the industry would be of considerable help to us in our study.

You may recall that this office prepared last year a 300-page report on commercial and technical aspects of air conditioning, in relation to field for sale of electric and gas utility services. The writer sent you a copy, which you acknowledged under date of April 30, 1934. Scope of investigation into frozen food industry is somewhat similar, though limited by difficulty of securing authentic information. Anything you can do to put us in touch with worth while data will be appreciated.

W. F. FRIEND,
Assistant Mechanical Engineer.

Answer: From all we can learn, the frozen foods industry, as an industry, is practically dead. General Foods is continuing the sale of Birdseye Frosted Foods through its subsidiary, Frosted Foods Sales Corp., in eastern states; and is slowly extending that distribution through the south and to scattered points in the middle west.

With the development by the American Radiator Co. of a low-temperature case costing less than \$300, Frosted Foods Sales Corp last fall opened its first intensive newspaper advertising campaign, Syracuse, N. Y., being selected as the city.

Development of the low-priced case, declare officials of the frozen foods company, made possible the appointment of more than one retailer in a city.

Details of the campaign were published on page 5 of the Oct. 17, 1934, issue of ELECTRIC REFRIGERATION NEWS.

Practically no other food producer seems to be interested in the frozen foods business any more.

The idea of merchandising quick-frozen foods of uniform quality to all sections of the country at all times of the year still seems like a good one. Impediments to the successful development of the idea seem to have included: (1) Prejudice against frozen

foods by housewives who had tried slow-frozen meats; (2) Inadequate transportation facilities for foods which had to be kept at sub-zero temperatures; (3) difficulties encountered by display case manufacturers in designing satisfactory cabinets; (4) a poor promotion job on the part of producers.

So far as we know, the Frozen Foods Association of America is no longer functioning actively.

Any information you may develop on the situation will be most interesting to us, for we have entertained high hopes for the future of this promising industry. Perhaps it is just dormant. If there are any signs of an awakening, we should be glad to hear about them.

Distributors Code

Frigidaire

Refrigerating Equipment Corp.
927 North Meridian St., Indianapolis

Editor:

As one of your subscribers, we would be greatly appreciative if you would give us some information.

In December, 1934, we received a letter from the Code Authority of the Electrical Wholesale Trade, 165 Broadway, New York City, Mr. E. Donald Tolles, secretary. This letter requested information as to our volume of sales during 1933. The information was furnished to Mr. Tolles.

We are now in receipt of an assessment based on our sales figure at the rate of 1/40 of 1 per cent in excess of \$50,000. We do not know whether to pay this assessment or not, since we do not know whether we rightfully come under the code for the Electrical Wholesale Trade.

We are today in receipt of a letter from Mr. David M. Trilling, president of the Radio Wholesalers Association, from which we quote the first paragraph: "We wish to advise you that THE WHOLESALE DISTRIBUTION OF HOUSEHOLD MECHANICAL REFRIGERATORS IS NOT UNDER ANY SUPPLEMENTARY CODE TO THE GENERAL WHOLESALE CODE at the present time." Mr. Trilling is suggesting that the Radio Wholesaling Code be expanded to embrace Mechanical Household Refrigerators.

Will you please advise us whether we, as wholesalers of Frigidaire, should contribute to the Electrical Wholesale Code Authority?

D. H. WHITE, Treasurer.

Answer: We would advise you to keep your money until the situation is clarified. We have the following letter from the NRA:

National Recovery Administration
Washington, D. C.
Feb. 21, 1935.

Dear Sir:

In response to your letter of Feb. 18, I am writing to say that distributors of electric refrigerators should operate under the Wholesaling or Distributing Code.

The question has been raised as to whether such distributors should not be placed under the Electric Wholesaling Code, but up to the present time no definite final ruling has been made concerning the status of these distributors under any code other than that of the Wholesaling or Distributing Trade.

E. O. MATHER,
Assistant Deputy Administrator,
Wholesaling Distributing Trades.

Never Heard of 'Em

28 East 31st St.
New York City

Editor:

May I ask you for some information which you are most likely to possess.

I understand, there is a concern in Detroit, an institution owned by a family, which has purchased a large number of patents pertaining to refrigeration with the intention of licensing as many as possible thus making new inventions available to the broadest possible number of users. Could you furnish me with the address?

SIEGFRIED RUPPCHT.

Answer: Can any reader identify this patent-holding, family-owned institution?

But Some Are Not So Quiet

Houston Lighting & Power Co.
Electric Bldg., Houston, Tex.

Editor:

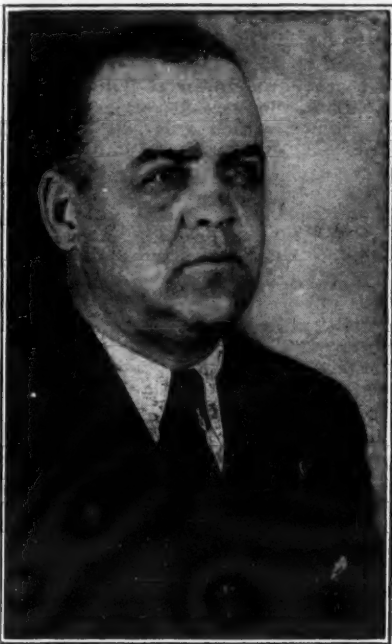
It is our feeling that the advertising on page 7 of the Feb. 20 issue of ELECTRIC REFRIGERATION NEWS did no good at all to the electric refrigeration industry.

Quite naturally the company which put in the advertisement had no intention of damaging the industry, but nevertheless it is our feeling that this has resulted. Competition has certainly made use of it.

Might we suggest that your company inspect the copy submitted by advertisers to be sure that it is consistent with the fact that modern electric refrigerators are quiet, efficient, and economical?

FRED STAACKE, Superintendent,
Residential Sales Dept.

They Head Frigidaire's B.T.U. Club



Cecil M. Kirby (left) of Miami, Fla., was elected vice president, and H. H. Swink of Sparta, Tenn., was elected president of the Frigidaire B.T.U. Club, organization of crack Frigidaire salesmen. They won their offices by virtue of their sales achievements during 1934.

Leonard Advertising Campaign Planned For Principal Cities

DETROIT—Aiming for blanket coverage of all metropolitan markets with factory controlled copy, the Leonard Refrigerator Co. last week announced that its 1935 spring sales campaign will include a special key city newspaper advertising campaign in from 85 to 100 principal cities.

The initial campaign will consist of a complete series of 40 and 30 inch advertisements, prepared and placed by Brooke, Smith & French, Inc., and to be followed by additional series in accordance with seasons.

"Under this expanded program, the factory, distributors, and dealers all will know exactly what newspaper advertising is going to run and when and where it will appear," Sam C. Mitchell, Leonard advertising manager says. "Dealers will be shown that this plan will enable them to time their own advertising and sales promotion activities in such a way as to increase the effectiveness of both their local advertising and the national campaign."

Control of schedules also makes it possible to have magazine and newspaper advertising telling the same story at the same time in keeping with the seasons or events.

"We feel also that this plan of giving the dealers extra advertising at no extra cost will not only benefit them directly, but will encourage them in their own advertising efforts. Dealers will be sent proofs of all national newspaper individual advertising, together with dates and other information, and will be urged to tie-in with it locally."

Monongahela Quota for Spring Drive Is \$70,000

FAIRMONT, W. Va. — Total 1935 Frigidaire quota for the Monongahela West Penn Public Service Co. territory was set at \$70,000 for the annual spring selling campaign, March 4 to April 27.

If any division reaches or exceeds its quota during the campaign, the salesman's share of an extra cash bonus will be governed by the total dollar volume of personal sales made by him—one-half of 1 per cent will be paid on total dollar volume sales if the quota is reached.

This bonus will be in addition to the regular sales commission.

Employee sales will count and the bonus will be paid on the net price to employees. No commission will be paid on sales to employees.

On commercial refrigeration sales, the extra bonus will be paid on the total installed price. All sales must be installed not later than May 15.

Boston Department Stores To Retail Crosleys

BOSTON—New dealer for Crosley electric refrigerators is the P. B. Margrove Co., department store on the North Shore, reports David C. Rockman, general manager of the George Collins Co., Crosley distributor here.

Crosley Dealer Appointed In Hartford, Conn.

HARTFORD, Conn. — G. Fox & Co., local department store, has been appointed dealer for Crosley electric refrigerators, reports T. J. O'Brien, president of the Hartford Electric Supply Co., Crosley distributor here.

Swink Named President Of Frigidaire's B.T.U. Salesmen's Club

DAYTON — H. H. Swink, Frigidaire salesman at Sparta, Tenn., has been elected president of the Frigidaire B.T.U. club by virtue of his sales achievement in 1934. H. H. Newell, vice president in charge of sales, Frigidaire Corp., announced last week.

Swink, employed by the Tennessee Electric Power Co., Frigidaire distributor for Tennessee, sold the highest percentage over quota of any of the more than 18,000 salesmen, supervisors, and dealers in the United States, according to Mr. Newell.

One time newsboy, soldier, aluminum salesman, Swink joined the Tennessee organization in February, 1934. He was a selling sensation from the start, vice president Newell states, but not until December did he nose his way into first place nationally, finishing with a sales record of 448 per cent of his year's quota.

Cecil E. Kirby, salesman for the Domestic Refrigeration Co., Miami, Fla., was elected vice president, Kirby was vice president in 1932 and always has been close to the top in the national organization.

The eight cabinet members elected were:

R. M. Smoak, salesman for Maas Bros., department store in Tampa, Fla.

S. A. Fertitta, salesman, Reed Co., Beaumont, Texas.

George W. Rauch, salesman, Empire District Electric Co., Joplin, Mo.

G. H. Elliott, salesman, Ohio Edison Co., Akron, O.

A. A. Salmon, salesman, Crescent Dept. Store, Spokane, Wash.

C. A. Spragins, Jr., dealer, Wichita Falls, Tex.

E. P. Koetter, salesman, F. L. Hazen, Inc., Peoria, Ill.

James A. Leach, salesman, McGregor's, Inc., Memphis, Tenn.

Forbes Meeting Draws 150 Grunow Dealers

BIRMINGHAM, Ala. — Approximately 150 Alabama dealers attended the meeting held recently by E. E. Forbes & Sons, Grunow radio and refrigerator distributor for this territory. E. L. Lindgren, division sales manager, and Warren Funk of the factory engineering staff, represented General Household Utilities Corp. at the convention.

South Jersey Refrigeration Show Director Named

CAMDEN, N. J.—Howard K. Suckling, representative of the Camden commercial office of the Public Service Corp. of New Jersey, recently was appointed director of the annual electrical refrigeration show to be held by the South Jersey Electrical League April 3, 4, 5, and 6 in the Public Service building here.

Other members named to the committee were William A. Major, Jr., agent, and William Fulton, refrigeration representative, also of the Camden commercial office of the corporation.

Boro Service Co. Moves Offices

NEW YORK CITY — Boro Refrigeration Service Co. of this city moved recently to 847 First Ave., reports N. N. Simon, of that company.

Birmingham Dealers Agree on Prohibiting Home Demonstrations

BIRMINGHAM — Home demonstrations are prohibited and no trade-ins are allowed except where another electric refrigerator is offered in exchange, in regulations recently adopted by the Electric Refrigeration Bureau of Birmingham.

Where a refrigerator is accepted in trade it must be at a price at which it can be resold, allowing for any reconditioning of the refrigerator plus installation costs.

A refrigerator can only be delivered where the contract is signed and cash payment made. Any salesman attempting to break up a sale after a contract is signed is subject to a \$10 fine. Dealers are not allowed to give any bonus merchandise with refrigerators, nor are they permitted to "knock" a competitor's product either in advertising or selling, or in any way whatsoever.

Dealers are required to furnish the Bureau with their latest list prices, which include delivery and installation, plus \$3.50 for a base plug. Cash discounts or secret rebates are outlawed.

Terms prescribed are \$10 down and monthly payments of not less than \$5, regardless of factory policies. An exception as to terms, however, is allowed in a leader model of each line carried.

In quantity purchases of four to 12 refrigerators, dealers may grant apartment houses a discount of 15 per cent, on purchases of 12 to 50 boxes a discount of 20 per cent and from 50 up, no limit to discount. No special discounts will be granted to schools, hospitals, and government agencies.

Temprite Feature Series (No. 2)

CONTROLLED TEMPERATURE

TEMPRITE control is of fundamental importance. For complete satisfaction, the first drink, the last drink and all drinks in between, must be at the same temperature. Temprite positive control together with instantaneous cooling assures this on either individual or multiple applications.



Refrigeration Distributors

Temprite Beer, Water and Beverage Coolers have achieved outstanding success in the field. We shall be glad to furnish you with complete information.

TEMPRITE PRODUCTS CORPORATION (Formerly Liquid Cooler Corp.)

"Originators of Instantaneous Liquid Cooling Devices"

Detroit

Michigan

The public and the trade may have as many different preferences in electric refrigeration units as there are dependable manufacturers. But on this one point they seem to be in general agreement. No units give more dependable and satisfactory performance than those produced by Universal Cooler.



UNIVERSAL COOLER CORPORATION

DETROIT, MICHIGAN

BRANTFORD, ONTARIO

MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

COMMERCIAL REFRIGERATION

New Westinghouse Water Coolers Eliminate Waste Water Method of Pre-Cooling

(Concluded from Page 1, Column 2) wrapped around the outside of the evaporator shell to take advantage of the cold produced on the outside of the evaporator shell to pre-cool the incoming water. The water then goes into the evaporator itself to get its final cooling.

This permits use of a large 3/4-in. drain straight from the drain at the top of the cooler to the drain line, which is said to obviate drainage problems encountered in industrial types of applications where tobacco leaves, food particles, and other

hour, and with 70° F. inlet water, 119/10 gal. per hour can be obtained. With model FWP-14 it is possible to get 42 gal. of water an hour with 60° F. inlet water and 229/10 gal. per hour using 70° F. inlet water.

Model SP-4 has an air-cooled condenser and uses a 1/2-hp. hermetically sealed compressor for a.c. applications, and for d.c. applications is equipped with an open-type unit which eliminates the necessity for a rotary converter. It is also equipped with an outlet in the rear for remote bubbler connections.

Capacity of the SP-4 model with 60° F. inlet water is 10 gal. of water per hour, and with 80° F. inlet water in an 80° F. room is 4 gal. of water an hour.

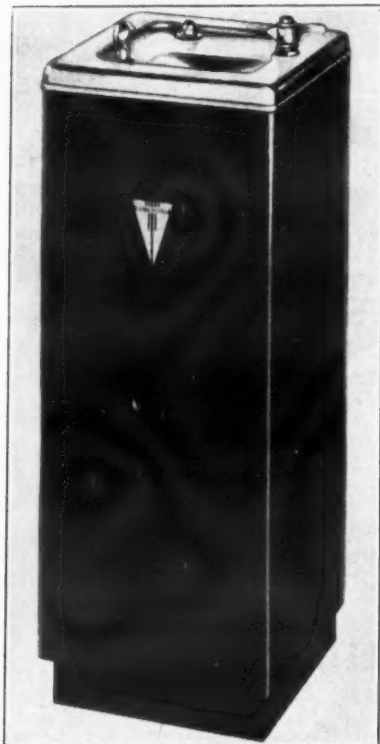
Bubblers on these models are of the angle stream type, protected by an approved sanitary type guard.

A pressure regulator controls the stream height at the bubbler automatically. Mounted in the rear, it is easily accessible.

Cooling units are insulated with 2 in. of granulated cork around all sides, top, and bottom, sealed in hydrolene.

Glass fillers are available at an extra cost with the new Westinghouse models.

A Newer Styling



New Westinghouse water coolers are narrower, with recessed base.

matter are allowed to filter down through the drain.

In textile mills or other factories where there is a lot of lint in the air, water coolers in which air-cooled units are employed are likely to run into trouble from clogged condensers, Westinghouse engineers declare, and for this reason models FWP-8 and FWP-14 employed a water-cooled condenser.

Since a hermetically sealed machine is employed in these coolers the motor and compressor can be readily cooled by wrapping cooling water lines around the motor and compressor shell. Water regulator valves automatically regulate the flow of cooling water while the unit is running, and stop the flow while the unit is idle. Model FWP-8 employs a 1/2-hp. hermetically sealed unit, and model FWP-14 employs a 1/2-hp. hermetically sealed unit. Freon is the refrigerant used in both machines.

With 60° F. inlet water, model FWP-8 has a capacity of 25 gal. per

Boston Hospital Fitted With G-E Units

BOSTON—Peter Bent Brigham hospital here was recently equipped with complete General Electric commercial refrigeration equipment by W. L. Thompson, Inc., Boston G-E distributor. Sam Kinhan, commercial salesman, made the sale.

Equipment installed includes 30 model BB-1 water coolers, two CS-270 storage cabinets with ice-making coils; 12 service refrigerators for use on ward floors; four refrigerators for use in laboratories and diet kitchens; eight conditioned-air chilling units, several finned-type coils for refrigerating walk-in coolers, and other G-E units for morgue and laboratory use.

J. H. Stone Establishes Insulation Firm

NEW YORK CITY — Junius H. Stone, formerly with the Cork Insulation Co., is now in the cork and steel construction business under his own name at 270 Madison Ave. here.

Mr. Stone is conducting business under the title "Corkansteel," United States Trademark No. 255,290, registered in his name April 16, 1929, and the several United States patents covering it, which have been issued to him and are under his control.

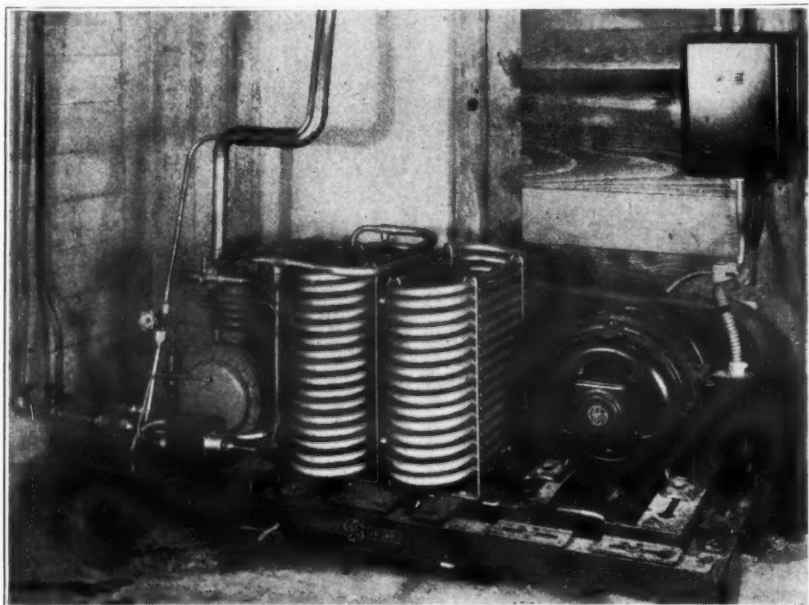
Hand Will Distribute McCray Products

HORNELL, N. Y.—Ernest A. Hand, of this city, was recently appointed to handle McCray refrigeration equipment in three counties of New York and three counties in Pennsylvania, officials of McCray report.

High Grade Banana Storage



In the storage room of the Independent Banana Distributors' warehouse in Los Angeles are installed General Electric "conditioned air" chilling units, which make possible proper temperature and humidity conditions.



Supplying refrigeration to the three "conditioned air" chilling units in the banana warehouse is this General Electric 10-hp. condensing unit.

Florida Terminal Has Various Types of Refrigeration

FORT PIERCE, Fla.—Frick refrigeration equipment is being employed for the refrigerated storage rooms and pre-cooling at the new gigantic Indian River Refrigeration Terminal just opened here.

Fort Pierce is the harbor outlet for the Indian River fruit district, and the plant has been arranged so that it can handle 1,250,000 crates of fruit in a season.

The plant has a total refrigerated space of approximately a half million cu. ft.

There are four fruit pre-cooling rooms, each measuring about 60x20x11 ft., which have a capacity of 8,000 crates of citrus fruit per day. The temperature of this fruit is lowered from 80 to 38° F.

In addition to the pre-cooling room, there are 12 large cold storage rooms, nine of which are arranged for either pre-cooling or cold storage.

Buffalo air washers and fans are employed for most of the cooling work.

The coolers are supplied with cold brine from a tank 26x12x5 ft., which in turn is equipped with a vertical coil having more than 2,200 sq. ft. of surface.

Between the pre-cooling rooms and the first floor cold storage rooms, a room 20 ft. wide extending across the building is provided; in this fruit is taken from the pre-cooling rooms and is either transferred to platform conveyors for loading into the cargo holds or is transferred to the holding rooms.

This room or passage is refrigerated by direct expansion wall coils, and being piped for a temperature of 32 to 35° F., can be used for emergency storage when desired.

On the second floor there are two rooms equipped with three expansion coils, one for fresh meat and the other for general storage.

Furnishing refrigeration for the terminal are three 10x10 Frick compressors direct-connected to 125-hp. Westinghouse motors. All three of the compressors are cross connected.

The ammonia feed to the brine tank and individual cooling units, which are of the brine spray type, is con-

trolled by float and thermal expansion valves.

Principal features of operation and design are the rapid distribution of air for the pre-cooling work and the close regulation of temperature and humidity in the fruit and vegetable storage rooms. A variation of only 2° F. is permitted in most of the rooms and the humidity is automatically controlled at the proper level.

Germans Use Refrigeration For Softening Leather

WASHINGTON, D. C.—A new process for softening leather by the use of refrigeration is described in a report in "The Electrical Products Trade Notes," a publication of the Department of Commerce.

In this process, patented in Germany, the drying and subsequent stretching of tanned hides becomes superfluous, and the finished leather is said to be much softer than that produced by any other process.

Damp or only slightly dried hides are subjected to a temperature of about 6° C. below the freezing point, and are thoroughly frozen. Exposure to currents of cold and dried air has proved most effective, the report says.

The water in the cells crystallizes and through its expansion in freezing separates the side fibres and loosens them without breaking their interconnection. This produces the softest possible upholstery or upper leather, it is claimed.

The degree of softness or flexibility of the leather depends on the water content of the hides when they are placed in the refrigerator, and on the method of freezing. The desired degree of softness can therefore be regulated.

Cost incurred by the use of refrigeration is offset by the fact that stretching machines are no longer required.

By the elimination of drying and stretching, production is speeded up considerably.

Pennington Bros. Handle Williams Commercial Line

ST. LOUIS, Mo.—Pennington Bros. Service Co. of this city has been named distributor for the Ice-O-Matic commercial line, report officials of the Williams Oil-O-Matic Heating Corp.

Crosley's New Cooler Retails for \$99.50

CINCINNATI—Crosley Radio Corp. has just announced the new Crosley Koldrink electrically refrigerated bottle cooler, which will sell for \$99.50, installed and including one year's service.

It is an automatic, package piece of equipment, needing only to be plugged into any regular 110-120 volt, 60 cycle light socket, to operate.

It is designed for use by restaurants, druggists, hotels, roadside stands, grocery stores, etc. It can also be used by dairymen doing a small volume of business.

The Koldrink is equipped with a 1/4-hp. Crosley refrigerating unit. It has a capacity of about 125 12-oz. bottles or 152 6-oz. bottles.

The bottle cooler is 44 1/2 in. long, 25 1/2 in. wide, and 37 in. high. Insulation thickness on the sides is 2 in., on the bottom, 2 1/2 in.

A cold control permits colder temperatures during rush hours or in extremely hot periods.

Exterior finish is in dark green metal panels. Side and end panels can be used for advertising stencil. Bottle opener and basket for caps are standard equipment.

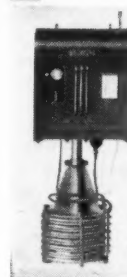
Kelvinator Systems Used In Ice Cream Trucks

SPENCER, Iowa—Two truck bodies built for the Northwest Ice Cream Co. here are refrigerated by Kelvinator truck refrigeration systems.

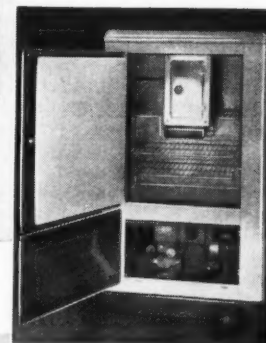
The trucks are designed to hold temperatures during the day to between -20° and 0° F. Corkboard insulation 6 in. thick was used. Bodies were built by the Batavia Body Co., Batavia, Ill.

SELL APPLIANCES

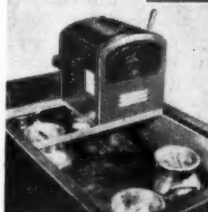
to Farm Homes



MILK COOLER UNIT



WAUKESHA GASOLINE OPERATED REFRIGERATOR



WAUKESHA MILK COOLER

Every dairy and farm, with or without electricity, is a logical prospect for these new high-grade appliances. Increase your market in a virgin field, with little competition. Their cost to the farmer is justified in the big savings they produce. Each unit is package merchandise, with simple, minimum installation requirements.

PROFIT for the FARM PROFIT for YOU

The self-powered Refrigerator is a marvel of modern efficiency, convenience. It operates quietly and with surprising economy. An Ice Maker (not illustrated) freezes fifty pounds of ice, in four cakes, in about five hours. The Milk Cooler is portable and adjustable to meet the various types of tanks—powered with the Waukesha Gasoline Ice Engine or the Waukesha Electric Ice Motor. Cools milk quickly and economically to 50°.

Refrigeration Division

WAUKESHA MOTOR COMPANY
Dept. N Waukesha, Wisconsin

DOMESTIC AND COMMERCIAL COMPRESSORS

.. the Qualities that endure —

—QUALITIES that help the responsible cabinet manufacturer, assembler, dealer, build and uphold his reputation. Trouble-free, durable, powerful, economical. Nine Years of field experience have well proven it. Why not submit your problem—today!

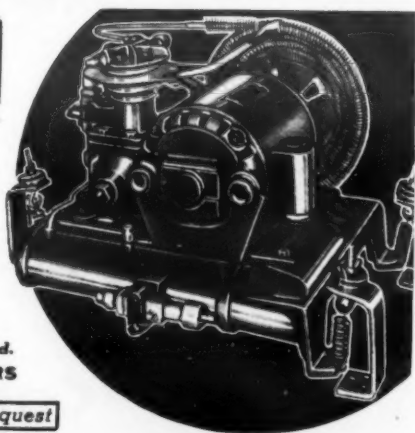
1/6 to 10 H. P.

Air Cooled. Water Cooled. Air and Water Cooled.

Complete line of BARE COMPRESSORS

Service companies and Assemblers are invited to write for SPECIAL PLANS.

Catalogs on request



MERCHANT & EVANS CO.
MANUFACTURERS
PHILADELPHIA
EST. 1866 — Plant: LANCASTER, PA.



AIR CONDITIONING

Self-Contained Unit For Railway Systems Made by Waukesha

WAUKESHA, Wis.—The Waukesha Motor Co., manufacturer of a gasoline-driven refrigerator for farm use, is now manufacturing the Waukesha-Melcher multiple-unit system of air conditioning for railway passenger cars.

Each unit is a complete, self-contained air-conditioning plant consisting of a base or mounting plate permanently attached to the car; a circulating section containing a blower, a filter, and regulating dampers; a cooling section comprised of a refrigerating compressor, condenser, evaporator, refrigerant receiver, and a compressor drive motor; and within the car, a thermostatically-controlled switch panel.

All units and sections are identical in construction, and are interchangeable for either installation or maintenance purposes.

No major changes in car construction are necessary in installing the system, which is available for either single or multiple use in new or existing cars. If desired, one or two units may be installed to condition only a certain section of a coach; four units will completely condition an average car.

The units operate on power furnished by the car lighting or auxiliary battery, the size of battery and generator required depending upon the number of units installed and the type of service in which the car is employed.

During all seasons of the year, the circulating section of the unit delivers to the car a fixed amount of filtered air. During the heating season, this air is distributed along and over the present heating coils, the mechanical movement of the air providing a uniform temperature throughout the car.

During the summer months, the unit's cooling section, in combination with the air section, provides cool, dehumidified air as required.

An individual unit, or any number of units, may be operated independently, to suit exactly the requirements of the car, and provide economical operation. Each unit is entirely automatic in its operation, requiring only the setting of the thermostat for the desired temperatures.

The circulating section of the unit consists of a 1/4-in. steel plate housing with cast steel end frames, with a lining of copper and brass, insulated with Celotex. Blower motor is of the flange mounting, fully enclosed, ball-bearing type, of 1/4-hp. capacity. A Sirroco-type blower wheel is used, with a capacity of 450 c.f.m.

Air filter is of the impingement type, and is easily cleaned. A regulating damper makes possible any desired proportions of outside and recirculated air.

The unit's cooling section uses a four-cylinder, reciprocating, fully enclosed, air-cooled compressor, with a multiple V-belt drive. Evaporator is of the heavy duty, seamless fin-tube type. The refrigerant is optional, either methyl chloride or Freon, 4 1/2 lbs. per unit. Compressor motor is 2-hp., fully enclosed, ball-bearing type. Refrigerating capacity of the unit is 1 1/2 tons.

Car air ducts are furnished by the purchaser, and are built into the car. Minimum cross section area of these ducts is 20 sq. in. Control panel consists of an air section control toggle switch, with an overload release; and a cooling section control toggle switch, with prism-type operation indicator. The panel is 6 in. high, 6 in. wide, and 3 1/4 in. deep.

8-Page Roto Section Is New G-E Medium

CLEVELAND — New advertising medium just now being put in use by the General Electric Co. is an eight-page rotogravure pictorial newspaper in tabloid size, with a space for rubber-stamping the dealer firm name. Issues may be used as handout pieces in the display room, by salesmen on calls, or as a direct mail piece.

Three or four issues will be published this year—two of which will be released this spring.

Philadelphia Dealers View S-W Line

PHILADELPHIA — Philadelphia Distributors, Inc., Stewart-Warner distributor for Philadelphia and vicinity, held its dealer meeting Tuesday, March 5, at the Bellevue-Stratford hotel to display the 1935 line of Stewart-Warner electric refrigerators.

Wagner Introduces New Line of Styled Fans

ST. LOUIS—Wagner Electric Corp. has just put on the market a new line of ultra-quiet and styled fans.

The blades are a combination of complex curves shaped to eliminate wind noise and to deliver a maximum volume of air. Motors are of the induction type, and the rotor is dynamically balanced.

Some features of the design are the modernistic guard of heavy steel wire finished in silver-gray; aluminum blades, treated and enameled ebony black; and a die-cast base finished in ebony black with a touch of silver-gray.

The fans are available in three sizes: 10 in., 12 in., and 16 in.

St. Louis Leads All Cities in Sales of Air Conditioning

(Concluded from Page 1, Column 3) city experienced one of the hottest summers in its history. For many days in July and August, the temperature ranged between the high 90's and the low 100's, and with high humidity made living and working in the city most uncomfortable.

This "forced market" condition evidently influenced a good portion of the sales, especially in offices, homes, and retail stores, and other places where it was necessary for St. Louisans to spend much time.

Although the number of air-conditioning installations was far ahead of all previous years in point of number, it ranked lowest in average size of units installed, as may be seen from the following table, showing average horsepower of units installed:

	No. of Installations	Total Connected Hp.	Average Hp. Per Installation
During 1934	150	1,367.75	9.118
During 1933	80	929.00	11.61
Before 1933	91	6,565.25	72.145

St. Louis Air-Conditioning Installations

Type of Establishment	Prior to 1933 No.	Prior to 1933 Hp.	During 1933 No.	During 1933 Hp.	During 1934 No.	During 1934 Hp.	Total Through 1934 No.	Total Through 1934 Hp.
Airports	..	..	..	..	1	8.75	1	8.75
Bakeries	6	40.75	1	22	..	..	7	62.75
Banks	..	..	..	..	2	64	2	64
Beauty Parlors	..	..	..	..	2	4.25	2	4.25
Breweries	..	..	..	..	1	46.25	1	46.25
Broker's Board Rooms	1	43	2	58.75	..	..	3	101.75
Country Clubs	..	..	..	..	1	12	1	12
Hospitals	..	..	..	..	1	.50	1	.50
Hotel Dining Rooms & Coffee Shops	8	654.25	2	80.50	3	69.75	13	804.50
Industrial Processes	5	897.50	4	122.75	1	12	10	1,032.25
Laboratories	..	..	..	..	1	1.75	1	1.75
Libraries	..	..	..	..	1	5.25	1	5.25
Offices	19	102.50	21	113.25	33	380	73	595.75
Office Buildings (Complete)	1	402.25	..	..	1	71	2	473.25
Printing Plants	..	..	..	..	1	48.25	1	48.25
Residences	24	58	34	86.50	70	144	128	288.50
Restaurants & Bars	5	367.25	1	56.25	7	188	13	611.50
Retail Stores	8	338.50	7	349.50	10	150.25	25	838.25
Sales & Display Rooms	6	81.75	4	12.75	7	35.25	17	129.75
Service Stations	..	..	..	..	1	5.25	1	5.25
Shoe Repair Shops	..	..	3	6.75	..	..	3	6.75
Studios, Broadcasting	..	..	..	..	2	19	2	19.00
Theaters	7	3,558	1	20	2	89.50	10	3,667.50
Undertakers	1	21.50	..	..	2	12.75	3	34.25
Totals	91	6,565.25	80	929.00	150	1,367.75	321	8,862.00



COOLING and DEHUMIDIFYING

COILS

To simplify the engineering and installation of air conditioning systems, Fedders announces a complete line of standard catalog sizes of all-copper cooling and dehumidifying coils in CAPACITIES SUFFICIENT FOR CONDENSING UNITS OF 1 to 100 HP.

FEDDERS' BULLETIN 91 clarifies and simplifies many

ENGINEERED FOR YOU AND PUT ON A PACKAGE BASIS

engineering questions about air conditioning coil selection. It is a working handbook that every engineer can use.

It gives coil sizes, capacities, conversion tables and charts—all in workable form. Coils are classified by model numbers for easy identification and quick selection. WRITE FOR YOUR COPY.

FEDDERS MANUFACTURING CO.

57 Tonawanda St.

Buffalo, N. Y.

106 E. 19TH ST.
NEW YORK

603 W. WASHINGTON BLVD.
CHICAGO

303 E. SIXTH ST.
CINCINNATI

209 S. PEARL ST.
DALLAS

923 E. THIRD ST.
LOS ANGELES

AIR CONDITIONING

Pullman Company Booklet for Passengers Promotes Idea of Air Conditioning

CHICAGO — Railroad passengers who travel in coaches operated by the Pullman Co. are being given the story of air conditioning in a new booklet, "Air-Conditioning, A New Pullman Service," which the company is distributing among its guests.

"For years the people of the United States have been accustomed to central heating plants in their homes, offices, theaters, public buildings, and even their automobiles," the booklet says, "but until recently we have had to accept hot summer air as a fact about which we could do nothing."

More to Air Conditioning

"It is therefore not surprising that we now speak in general terms of a building, theater, or railroad car in which the air is cooled in the summer as being 'air conditioned.' However, there is much more to air conditioning than simply heating or cooling the air."

"About 30 years ago, doctors and scientists began a serious study of what makes people comfortable. Their findings definitely established air circulation as one of the principal requirements for comfort. The normal human body gives off enough heat in one hour to raise 1,000 cu. ft. of air some 20° F., so the necessity for removing this blanket of air is obvious."

"There are many ways by which this may be done, but frequently the cure is worse than the disease, and we are all aware of the disastrous results that often occur from sitting in a draft. The problem of creating a proper air movement without a draft is decidedly more difficult in a

moving Pullman car than in a stationary building."

The booklet next explains the development of railway car ventilation by Pullman engineers, from primary stages to the present air-conditioned coaches, using mechanical equipment.

Fresh Air Introduced

"Many people—making their first trip in an air-conditioned car—have difficulty in becoming accustomed to closed windows, and fear that the air in the car is not pure," the booklet says. "There is no need to open windows in an air-conditioned Pullman to get fresh air, as a generous supply of outside air is constantly being drawn in by means of an electric suction fan, filtered and cleansed of dirt, dust, pollen, and other impurities."

Effect of Open Windows

"The next step in the process is to mix this air with recirculated air and blow it over cooling or heating coils, as the season dictates. The temperature of these coils over which the air passes is thermostatically controlled, so that the tempered air, when it reaches the body of the car, will be quite comfortable. When warm air passes over cold coils, excess moisture in the air is condensed and removed, thereby controlling humidity as well as temperature."

"The capacity of the refrigerating machine installed in the car is necessarily designed for cooling a certain volume of air. Therefore, if windows are opened and additional quantities of air are permitted to enter, the cooling machinery cannot handle its job and the car becomes uncomforta-

bly warm and humid. Everyone knows what happens if the doors of an icebox are left open: the effect on the cooling system of a Pullman is the same when you open a window to outside heat."

Equipped with Air Ducts

"All air-conditioned cars are equipped with a system of air ducts and openings through which air, after it has been filtered and tempered, is blown to every part of the car. The fan which circulates this air and the outlets through which it enters the car are designed to prevent violent circulation of air or draft upon passengers."

"Drawing rooms, compartments, and bedrooms which are provided with individual heating control now offer the added attraction of individual cooling control shutters which permit the occupants to regulate the volume of air entering the room to their own taste without interfering with cooling in the main body of the car."

Balanced Temperature

"In summer no attempt is made to maintain a constant temperature in an air-conditioned Pullman car. There is no single temperature which gives the highest degree of comfort to everyone. Rather, there is a range of balanced temperature and humidity in which comfort is nearly universal, and it is in this range that we always attempt to stay."

"The range desirable in summer is always a little higher than in winter, as a temperature agreeable in winter would give a distinct sense of coolness on a very hot day. Scientists have conducted many tests to determine a 'comfort zone' for each of the seasons, and accordingly the balancing of comfort factors in an air-conditioned Pullman shifts back and forth as seasons change."

"There have been experiments to determine the beneficial effect of air-conditioned rooms on persons suffering from hay fever, pollen-asthma,

and similar respiratory trouble. In many cases people afflicted with these troubles have traveled in air-conditioned Pullmans and experienced relief. The filters which remove pollen and other dust contribute largely to this relief."

"The air-conditioning system installed in Pullman cars functions throughout the year, and although its effects are most obvious in the summer time it is likewise beneficial when the cooling system is not required. Often in winter, when storm windows are lowered, it is difficult to have a desirable circulation and any quantity of outside air without creating unpleasant drafts."

"But in air-conditioned Pullman cars a substantial amount of outside air is continuously being drawn into the car and warmed for comfort. It is never necessary to open windows in order to avoid stuffiness. The air-conditioning system automatically adjusts the air with the change in seasons."

Air Conditioning Uses Explained in Booklet of Electrical Groups

PHILADELPHIA — New brochure recently issued by the Electrical Association of Philadelphia points out the many different types of uses for air conditioning in an effort to "create, on the part of non-users, air-conditioning consciousness."

The first three or four pages describe briefly the history of the growth of air conditioning. Two-page divisions illustrate, describe, and mention users of air conditioning under the following heads: theaters, stores, restaurants, offices, commercial and professional (brokers' board rooms, beauty parlors, professional offices, and hospitals), textiles, bread baking, printing, candy, tobacco, breweries, industrial (leather, milk, and packing, etc.).

Says the booklet: "The data presented in this brochure illustrates the fact that air conditioning is now being used in almost every type of business and has proven to be a sound economic investment."

"The business that enjoys the benefits of air conditioning has weather made-to-measure to fit its particular requirements. Employee absences are cut down to a negligible percentage—and far higher employee efficiency is secured because of ideal working conditions the year 'round."

"We believe the installation of air-conditioning equipment is one of those rare investments so often heard of, so seldom found—that will actually pay for itself. Many users have testified that it did so within two years."

"The vast amount of practical knowledge and experience accumulated over more than 30 years by the large air-conditioning companies installing systems to meet almost every imaginable condition, assures the prospective user that his system when installed will maintain the conditions exactly suited to his specific needs."

"You will find on a following page a list of leading companies that specialize in the installation of air-conditioning equipment."

"You can learn from any of them without cost, just what air conditioning can do for your business, what equipment will be needed—and what the cost will be both for installation and operation."

The last page of the pamphlet lists the manufacturers and distributors belonging to the association. Members are as follows:

Manufacturers:
Baldwin-Southwark Corp., De La Vergne air conditioning, Eddystone, Pa.; Carrier Engineering Corp., Carrier; General Electric Co., General Electric; John J. Nesbitt, Inc., Nesbitt "Personal Weather"; Westinghouse Electric & Mfg. Co., Westinghouse; York Ice Machinery Corp., York, all of Philadelphia.

Distributors:
S. S. Fretz, Jr., Inc., General Electric; J. J. Pocock, Inc., Frigidaire; Eugene P. Kiehl, Inc., Westinghouse; Raymond Rosen & Co., Kelvinator; Peirce-Phelps, Inc., Gar Wood Tempered-Aire; Trilling & Montague, Carrier; James A. Walsh, Inc., Chrysler Airtemp, all of Philadelphia.

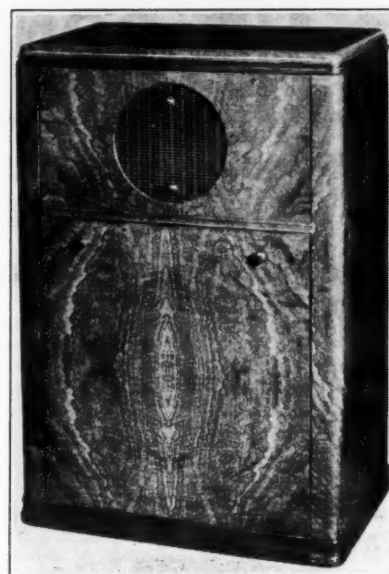
Adams & Adams Moves To New Location

DAVENPORT, Iowa — Adams & Adams, Crosley refrigerator distributor for this city, recently moved to a new location. Feature of the organization's advertising program is two daily Crosley broadcasts over a local radio station.

American Auto Stores to Handle Crosley Line

LANCASTER, Pa. — The American Auto Stores Co. was recently named dealer for Crosley electric refrigerators, reports Charles E. Rineer, of the Eshelman Supply Co., Crosley distributor for Lancaster.

Spot Kooler



This new Ilg product requires only connection to the power and water supply and return lines.

Ilg Develops New Spot Kooler

CHICAGO — In the 1935 line of Ilgair cooling and air-conditioning equipment, recently introduced by Ilg Electric Ventilating Co., are a new self-contained Spot Kooler, and a ceiling-type unit cooler, available in four sizes.

The new Spot Kooler (Model No. 11) is a compact, self-contained unit, operating much the same as does an ordinary electric refrigerator.

The unit is equipped with a water-cooled compressor, located in the base of the metal cabinet. The fan and coil are in the top of the cabinet. A circular adjustable grille provides concentration of the air flow to the right or left, and up or down, accentuating the unit's spot-cooling powers.

The Spot Kooler is suitable for use in offices, homes, small shops, restaurants, and the like. The only connections required are to the electric light and water supply and return lines. The model is 42 3/4 in. high, 29 1/4 in. wide, and 18 1/2 in. deep.

The new Ilg ceiling-type unit coolers are distinctively styled, compact, and suitable for use in stores, restaurants, and offices. The line has four sizes, ranging from 1 to 4 tons.

Directional air control, up or down or to the right or left, is afforded by the circular adjustable grille, permitting concentration of the cooled air in any direction desired.

Front panel of the unit is hinged and is easily opened for adjustments to the expansion valve coil. All connections are made in the back of the unit, where the drain, supply, and return refrigerant lines are grouped together at the base of the fan support. The fan unit is protected by a two-section, removable guard.

The units are intended for use singly or in multiple, with a remotely located compressor. Freon, methyl chloride, or cold water may be used as the refrigerant.

The Ilg self-cooled motor propeller fan mounted at the back of the unit provides adequate air circulation.

New Service Co. Opens In Baltimore, Md.

BALTIMORE — An addition to the wholesale refrigeration parts and supply field has been effected here through the opening of the United Radio & Refrigeration Service Co., at 891 North Howard St.

This concern, which has been organized by Leon Hornstein and Carroll W. Thurlow, Jr., will devote its business to the wholesaling of refrigeration, radio, and electrical supplies and the wholesale servicing, that is, servicing to the trade, of refrigerators and radios.

A complete stock of refrigeration parts as well as radio equipment will be carried. The concern also will operate a refrigeration service shop.

Both Messrs. Hornstein and Thurlow have been associated with the electric refrigeration service and radio service work for more than a decade.

Porcelain Enameling Is Demonstrated in Store

DETROIT — First porcelain enameling demonstration attempted in a department store is now being conducted at Crowley Milner's here by Ferro Enamel Corp. The display is under the direction of H. Edward Winter, designer and artist.

The demonstration consists of a porcelain enameling oven, where steel ash trays are porcelain enameled "on the spot" and given away to demonstrate the material. The consumer's name may be written by himself on the tray before it is "fired."

AMERICAN RENEWABLE TYPE AIR FILTERS



CLEAN AIR AT MINIMUM COST

NO ONE air filter can meet all requirements of modern air conditioning. Methods, equipment and conditions vary. Efficient and economical air filtration cannot be had unless the filter conforms to the characteristics of the system; that is why the American Air Filter Company manufactures a complete line of air filters designed to meet every air filtration need.

The THROWAY filter is of heavy cardboard construction in which is enclosed a split-wire pad. After it has served its maximum period of usefulness the whole unit is discarded. Its resistance is lower and dust-holding capacity larger than any similar type filter.

The RE-NU filter is of permanent all-metal construction. Only the filter pad is renewed. Ideal for use in home air-conditioning systems.

The DRY-FILTER TYPE K is an inexpensive dry filter for use where the greatest degree of air cleanliness is required. Its high efficiency in pollen removal makes it ideal for hay-fever and asthma relief.

In addition to the above filters for use in unit air conditioners, the American Air Filter Company manufactures a complete line of air filters designed to meet the air cleaning needs in large or small central systems.

The STANDARD UNIT filter is constructed on the unit plan with a standard steel frame and interchangeable cell. Its rugged construction, high efficiency and large dust-holding capacity meet all requirements of heavy air cleaning service.

The MULTI-PANEL AUTOMATIC filter is recommended where a large volume of air is to be conditioned. Widely used in commercial and industrial air conditioning where a constant uniform air supply with a minimum of maintenance and attention is a requisite.

FINE MEDIA

COARSE MEDIA

RE-NU VENT filter was especially designed to meet the needs for an efficient air cleaner for small ventilating and central air conditioning systems. Due to its new Progresso-Pak filter pad, when compared with two ordinary cardboard type filters in series, its cleaning efficiency is equal or better, its resistance averages 48% less and its dust-holding capacity is 26% greater.

AMERICAN AIR FILTER COMPANY, Inc.
109 CENTRAL AVENUE IN CANADA, DARLING BROTHERS, LIMITED, MONTREAL, P. Q. LOUISVILLE, KENTUCKY

AMERICAN AIR FILTERS

AIR CONDITIONING

Oil Burner Dealers Will Hold Initial Convention April 2

NEW YORK CITY — The first convention of the National Oil Burner Dealers' Association will be held at the Hotel Pennsylvania here April 2 and 3, Arthur W. Clark, secretary of the organization, announced recently.

The first day of the convention will be devoted to organization meetings. New officers and directors will be elected at the afternoon session of the first day. Two educational sessions and a banquet are scheduled for the second day.

John W. Scott, president of Buckley & Scott Utilities, Boston, will preside at the morning session on the second day. Speakers at this session include: R. P. Babcock, New England sales manager for Petro-Nokol; Walter O. Harvey, president of Harvey-Whipple, Inc., Springfield, Mass.; and F. H. Van Blarcom, general manager of Lynn Products, Lynn, Mass., and president of the Distillate Burner Manufacturers' Association.

R. S. Bohn, president of Preferred Utilities, New York City, will be chairman of the afternoon session. Speakers at this session will be: John A. Berghoff, vice president and general manager of Wayne; Ralph P. Wilson, vice president of Babson's Statistical Organization; and W. A. Scherff, manager of oil furnace sales for General Electric Co.

No all the evening session speakers have been announced, but among those who have accepted are: Dr. Tehyi Hsieh, "The Teddy Roosevelt of China;" Major Charles T. Harding, Boston; R. M. Sherman, president of the American Oilburner Association; and Leonard Smyth, president of the National Oilburner Dealers' Association.

Long Island Restaurant Air Cooled with Gas

JAMAICA, L. I.—Low operating costs are claimed for the first restaurant in the United States to be summer air conditioned with gas, located here.

Complete records for 45 days during peak loads show costs averaging 36 cents per hour in July and August, and 25 cents in June and September. The restaurant holds 160 persons, has a floor area of 2,500 sq. ft. and a volume of 27,500 cu. ft., giving 170 cu. ft. to a person. Total heat gain, assuming a maximum 125 persons, is 65,700 B.t.u. an hour.

Two factors which help keep heat gain low are the restaurant's small window area and its exposure to the sun only three hours daily.

Dehumidifying unit in the system is of the rotary type, containing 176 lbs. of silica gel in 24 beds. At any one time, 11 beds are in the absorption stream removing moisture from the air, eight are in activation having water removed, two are in the purging zone being cooled, and three are under seals.

The entire unit is rotated every 20 minutes by a 1/20-hp. motor, a 1-hp. motor driving the fan which supplies air for reactivating and purging, heated by a gas furnace.

American Blower Publishes Reference Book

DETROIT — Covering the entire field of air conditioning and engineering, a 70-page technical book, complete with charts, photographs, drawings, and tables, is being published by the American Blower Corp. for the use of its organization and for reference purposes generally.

New American Blower volume goes into the various phases of air engineering and air conditioning thoroughly. Experience of the company's own engineers and data gathered from other reliable sources have been included, to bring about a library on the subject in one volume which eliminates the necessity for numerous reference books, tables, and data sheets.

Subjects covered include air, heat, steam, air flow, sound, heating, ventilating, humidifying, dehumidifying, cooling, control, vapor absorption, drying, etc. All subjects are indexed, charted, illustrated and cross indexed, to permit easy research reference.

More than four and a half years were required to write and compile this volume. One hundred copies were run off six months ago and placed in the hands of the authors and field executives to check every detail for accuracy before the main press run.

What amounts to the second and corrected printing of this book, is expected to be off the press about April 1, and will be distributed to interested architects, engineers, salesmen, and manufacturers at \$5 per copy.

Fedders Will Market Conditioning Coils In 'Packages'

(Concluded from Page 1, Column 2)

ders bulletin No. 91. This catalog is also an engineering manual, giving conversion tables and charts, suggested hook-ups, and information on valves and unit coolers.

Fedders coils are now manifolded separately, permitting the installation of individual thermostatic expansion valves for each row of tubing.

This is done, Fedders engineers declare, because in multiple section coils, the first row of tubing with which the entering air comes in contact, transfers as much as five times the heat of that of the fifth row and almost twice the heat of the second row. Therefore each row of tubing requires an amount of refrigerant in accordance with the capacity of that particular row of the coil to get the greatest efficiency out of the system.

F & R Lazarus Store in Columbus Claims First Complete Store Air-Conditioning Installation

COLUMBUS, Ohio—What is said to be the first large-store installation of a complete air-conditioning system is in operation in the F. & R. Lazarus & Co. department store here.

The system, installed last summer, covers six stories and basements, including four restaurants, numerous fitting rooms, entrance lobbies, and all departments and spaces accessible to customers, a total of 480,000 sq. ft. of selling space.

1,500 Ton Capacity

The installation is capable of handling 18,000,000 cu. ft. of air per hour, providing a complete change of air every 15 minutes. Fifteen hundred tons of refrigeration is available for cooling, of which 900 tons is represented in the ground water used in the system, and 600 tons in three 200-ton compressor units.

Water for the system is raised from a 325-ft. well in quantities of from 1,000 to 1,500 gal. per minute, by a Deming turbine pump driven by a 125-hp. vertical motor. Because the water

contains more than a trace of sulphur odor, it is returned promptly to the ground after serving its use in the cooling system.

The water rises at 54° F. and its temperature is lowered to 42° F. by the York refrigerating units, using Freon. These units are driven by two synchronous type Allis-Chalmers motors of 150 and 225 hp.

Water Used

After being refrigerated, the ground water is pumped through the store building in ceiling-suspended pipes to 56 unit air coolers on the first and upper floors, and 23 larger units located in the basement and at street level. From these units, the water returns at a temperature of from 64 to 66° F. to the Freon condenser and the discharge well already mentioned.

Each cooling unit is equipped with filters, cooling and dehumidifying coils, and has an outside air connection through which fresh air in the ratio of 30 per cent of the total volume is taken. Blowers in the 56 unit

coolers are operated by 2-hp. Century motors automatically controlled with Powers Regulator Co. pneumatic equipment to maintain 50 per cent relative humidity at the temperature, which is automatically set in relation to that of the outside air. The 23 larger units also use 2-hp. Century motors.

A relative humidity of 50 per cent, according to Edward A. Ashley, consulting engineer who directed the installation, eliminates the feeling of extreme coldness when entering the building, or of dampness when leaving.

Common tendency in air conditioning, says Mr. Ashley, is to drop temperature rather than control humidity, with the result that people feel the decided difference between outdoor and indoor temperatures.

Young Makes Overstreet Purchasing Agent

RACINE, Wis. — Young Radiator Co., manufacturer of refrigeration coils and air-conditioning equipment has appointed R. C. Overstreet as purchasing agent.

Mr. Overstreet was formerly connected with the Mueller Furnace Co., Milwaukee, and the Nash Motors Co.

TO HELP *you* SELL MORE AIR-CONDITIONING EQUIPMENT

GIVE THEM AIR-CONDITIONING THAT'S SAFE AND EFFICIENT
and you can, by specifying equipment that uses "Freon," a non-toxic, non-flammable, efficient refrigerant

THE rapidly growing air conditioning industry of the United States has been founded on the fundamental principle of safety. Great manufacturers of refrigeration equipment for air conditioning are safeguarding the life and health of the public by using the ultra-safe refrigerant "Freon" in their equipment. "Freon" has been completely tested by the Bureau of Mines and the Underwriters' Laboratories and is employed in thousands of road cars, office buildings, restaurants, stores, libraries, railroads, ships, submarine boats, and other naval craft. "Freon" is non-toxic and non-flammable and when mixed with air, up to 20% by volume, has no detectable odor. Air conditioning installations containing "Freon" are free of the hazards of fire, explosion, and panic. Building owners and managers should join with the principal interests of their tenants when purchasing refrigeration equipment for reciprocating compressors and trichloromonofluoromethane ("F-11") (Carrene No. 2) in centrifugal type apparatus. "Freon" condensing units of various types and sizes are manufactured by some thirty-odd refrigerating machinery manufacturers. Nearly all air-conditioning systems employ "Freon" or F-11. See that your tenants obtain these safe refrigerants. In succeeding numbers of this magazine you will find illustrated descriptions of notable "Freon" installations.

...this "FREON" advertisement appeared in publications reaching 55,735 of your prospective customers

These facts about "FREON" will help you sell more air-conditioning equipment

- 1 "Freon" is safe—non-toxic, non-flammable, and when mixed with air, up to 20% by volume, is without detectable odor.
- 2 "Freon" is used exclusively by the great manufacturers of air-conditioning systems.
- 3 "Freon" has been tested by the U. S. Government Bureau of Mines and the Underwriters' Laboratories, and was found to be safe.
- 4 Where safety of life and goods is a requirement, "Freon" is the refrigerant specified.

DURING 1935 "Freon"—a safe refrigerant for air-conditioning and household and commercial refrigeration—will be advertised in publications reaching architects, building owners and engineers; executives in restaurants, hotels, railroads, department stores; and many other of your

most valuable and important prospects. We believe this advertising campaign

FREON
REG. U. S. PAT. OFF.

a safe refrigerant

will prove of benefit generally to the air-conditioning industry, and specifically will help develop immediate prospects for you. Dealers everywhere will find it to their advantage to point out to interested purchasers of air-conditioning equipment the safety features of "Freon"—a safe refrigerant.

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE

PROPOSED NEW YORK REFRIGERATION CODE REVISED

Criticisms Must Be Made in Writing by March 25

The second revision of the proposed code of ordinances of the City of New York relating to refrigerating systems was completed March 8. The first draft of the proposed code was published on page 14 of the Jan. 16 issue of the News. Criticism or endorsement of the new code must be made in writing by March 25 to C. K. Michaels, Room 1100, Bureau of Combustibles, Fire Department, New York City.

Article 1

General Provisions

Sec. 1. Definitions:

Unless otherwise expressly stated, whenever used in this chapter the following terms shall respectively be deemed to mean:

33. Refrigerating System: A combination of apparatus in which a refrigerant is or can be circulated for the purpose of extracting heat.

(a) The parts of the system are the compressor, generator, condenser, absorber, shell type or tube type apparatus, evaporator, piping, vessels, or other parts, containing a refrigerant.

(b) Direct Method of Refrigeration: A system in which the evaporator is located in the material or space refrigerated or in air circulating passages communicating with such space.

(c) Indirect Open Spray Method of Refrigeration: A system in which a liquid as brine or water cooled by an evaporator external to a material or air cooling chamber is circulated to such material and/or air cooling chamber through pipes or other closed surfaces.

(d) Indirect Closed Surface Method of Refrigeration: A system in which a liquid as brine or water cooled by an evaporator external to a material or air cooling chamber is circulated to such material and/or air cooling chamber through pipes or other closed surfaces.

(e) Double Indirect Open Spray Method of Refrigeration: A system in which a liquid as brine or water cooled by an evaporator further cools, without direct contact, brine or water in another vessel external to a material and/or air cooling chamber, which second brine or water is then circulated to such material and/or air cooling chamber through spray or sprays.

(f) Double Indirect Closed Surface Method of Refrigeration: A system in which a liquid as brine or water cooled by an evaporator further cools, without direct contact, brine or water in another vessel external to a material and/or air cooling chamber, which second brine or water is then circulated to such material and/or air cooling chamber through pipes or other closed surfaces.

(g) Unit System Refrigerator: A refrigerator box or water cooler containing in it and/or on it an entire refrigerating system for making ice and/or cooling water and/or other substances, which box or water cooler with its refrigerating system may be removed from the premises without disconnecting any refrigerant containing parts.

(h) Refrigerating System of Sealed Type: A refrigerating system which does not depend upon moving surfaces for the retention of refrigerant and which will not develop a refrigerant leak when subjected to a temperature of seven hundred degrees Fahrenheit (700° F.) for thirty (30) minutes in an oven, when the system is fitted with a temporary device to relieve excess pressure over three hundred (300) pounds per square inch.

(i) Refrigerant is the chemical agent other than brine or water used to produce refrigeration.

(j) Hydrocarbon Refrigerant: Any refrigerant composed exclusively of hydrogen and carbon.

(k) Irritant Refrigerant: Any refrigerant which when breathed attacks the throat or lungs, and/or is a toxic refrigerant. A toxic refrigerant is any refrigerant which, in concentrations of 2.5% or less by volume in air for duration of exposure of two (2) hours or less, is lethal or produces serious injury to guinea pigs of the disease-free type which are exposed to it. (See Underwriters' Laboratories Report MH-2375 for methods of testing.)

(l) Non-irritant Refrigerant: Any refrigerant which when breathed does not attack the throat or lungs, and is a non-toxic refrigerant. A non-toxic refrigerant is any refrigerant which, in concentrations of 2.5% by volume in air for duration of exposure of two hours, is non-lethal and does not produce serious injury to guinea pigs of the disease-free type which are exposed to it. (See Underwriters' Laboratories Report MH-2375 for methods of testing.)

(m) Flammable Refrigerant: Any refrigerant which has an apparent ignition temperature below 1220° F., when tested according to the methods of the Underwriters' Laboratories described on pages 94 and 95 of Underwriters' Laboratories Report MH-2375.

(n) Non-flammable Refrigerant: Any refrigerant which has an apparent ignition temperature above 1220° F., when tested according to the methods of the Underwriters' Laboratories described on pages 94 and 95 of Underwriters' Laboratories Report MH-2375.

(o) Vented Flame: Any flame from which the products of combustion are carried to the outside of a building by means of a conduit to a chimney or by a hood connected to a chimney or to the outside air.

(p) Brine: Any cooled liquid which is used for the transmission of heat without a change of its state.

(q) Duct: A tube or conduit used for conveying air in an air conditioning system.

(r) Piping: Pipe or tube mains for interconnecting the various parts of a refrigerating system.

(s) Pressure Relief Device: A pressure relief valve or a rupture member for relieving excess pressure.

(t) Pressure Relief Valve: A valve held closed by a spring or other means to automatically relieve pressure in excess of its setting.

(u) Pressure Limiting Device: A pressure or temperature responsive mechanism for automatically stopping the operation of the pressure imposing element, in case of excess pressure.

(v) Pressure Imposing Element: That apparatus which draws the refrigerant from the low pressure or low temperature side of the system and discharges it into the high pressure or high temperature side of the system.

(w) Rupture Member: A device that will automatically rupture at a pre-determined pressure.

(x) Liquid Receiver: A vessel permanently connected to a system by inlet and outlet pipes for storage of a liquid refrigerant.

(y) Evaporator: That part of a refrigerating system in which a refrigerant is vaporized to produce refrigeration.

(z-1) Refrigerating Machinery Room: A room in which is located a refrigerating system containing a refrigerant, but not including evaporators when located in a cold storage room, refrigerator box, or other enclosed space.

(z-2) Department Store: A building where more than one hundred (100) persons commonly assemble above the first floor for the purpose of buying personal wearables and other merchandise used in the home.

(z-3) Air Conditioning: Cooling of air for human comfort by means of a refrigerating system and/or brine and/or water.

(z-4) Container: A cylinder for the shipment of refrigerant constructed to conform to the regulations of the Interstate Commerce Commission.

(z-5) Public Buildings: Public Buildings are building or parts of building in which persons congregate for civic, political, educational, religious or recreational purposes, or in which persons are harbored to receive medical, charitable or other care or treatment, or in which persons are held or detained by reason of public or civic duty, or for correctional purposes, including among others, court houses, schools, colleges, libraries, museums, exhibition buildings, lecture halls, churches, assembly halls, lodge rooms, dance halls, theaters, bath houses, hospitals, asylums, armories, fire houses, police stations, jails, and passenger depots.

(z-6) Residence Buildings: Residence Buildings are building or parts of buildings in which sleeping accommodations are provided, except such as may for other reasons be classed as public buildings, including among others, dwellings, tenement houses, hotels, lodging houses, dormitories, convents, and studios and club houses having sleeping accommodations.

(z-7) Business Buildings: Business Buildings are buildings or parts of buildings, which are not public buildings or residence buildings, including among others office buildings, stores, markets, restaurants, warehouses, freight depots, car barns, stables, garages, factories, laboratories, smoke houses, grain elevators, and coal pockets.

Article 3

Bonds and Fees

Sec. 43. Fees for Permits:

Applicants for permits under the provisions of this chapter shall pay annual fees for each refrigerating system, as follows:

A system containing over 1,000 pounds.....	\$20.00
A system containing 100 to 1,000 pounds.....	10.00
A system containing 20 to 100 pounds.....	6.00
A system containing 6 to 20 pounds.....	4.00
A system containing less than 6 pounds.....	1.00

Article 18

Refrigerating Systems

Section 216. Permits and Approvals.

Section 217. Supervision.

Section 218. Classifications.

Section 219. Permissible Locations.

Section 220. Refrigerating Machinery Rooms.

Section 221. Ventilation.

Section 222. Open Flames and Electrical Equipment.

Section 223. Testing.

Section 224. Piping.

Section 225. Safety Devices.

Section 226. Operating Precautions.

Section 227. Illustrations of Methods of Refrigeration for Air Conditioning.

Sec. 216. Permits and Approvals:

(a) No person shall maintain and/or operate a refrigerating system without a permit.

(b) Exemptions—no permit, however, shall be required to maintain and/or operate a refrigerating system in the residence portion of any building.

(c) No refrigerating system shall be installed, serviced, repaired, or dismantled by other than a person, partnership or corporation who has obtained a license from the Commissioner of Buildings. Such licensee shall establish satisfactory evidence of competency by training, experience, and examination.

(d) No permit shall be issued until a licensed installer has filed notice with the Fire Commissioner that the installation of the system has been made in accordance with the requirements of this Code.

(e) No refrigerating system shall be maintained or operated employing a refrigerant other than those specified in this article without a permit issued upon such conditions as are deemed necessary by the Fire Commissioner in the interest of public safety.

Sec. 217. Supervision:

(a) No refrigerating system containing more than one hundred (100) pounds of refrigerant shall be operated in any building except under the personal supervision, direction or control of either a duly licensed engineer or a person who has obtained a certificate of qualification to operate such a system from the Commissioner of Buildings. Where the system contains not more than two hundred (200) pounds of refrigerant and is fully automatic, only one qualified operator will be required. An engineer or operator shall not supervise or operate refrigerating equipment in more than one building.

Sec. 218. Classifications.

(a) For the purpose of this article, refrigerants shall be classified as non-irritant or irritant, and further as flammable or non-flammable.

Refrigerant	Chemical Symbol	Classified as
Ammonia	NH ₃	Irritant and flammable
Butane	C ₄ H ₁₀	Non-irritant and flammable
Carbon Dioxide	CO ₂	Non-irritant and non-flammable
Dichlorodifluoromethane (Freon) (F-12)	CCl ₂ F ₂	Non-irritant and non-flammable*
Dichlorotetrafluoroethane (F-114)	C ₂ Cl ₂ F ₄	Non-irritant and non-flammable*
Dichloromethane (Methylene Chloride) (Carrene No. 1)	CH ₂ Cl ₂	Non-irritant and non-flammable*
Dichloromonofluoromethane (F-21)	CHCl ₂ F	Non-irritant and flammable*
Dichloroethylene	C ₂ H ₂ Cl ₂	Irritant and flammable
Ethane	C ₂ H ₆	Non-irritant and flammable
Ethyl Chloride	C ₂ H ₅ Cl	Non-irritant and flammable
Isobutane	(CH ₃) ₂ CH	Non-irritant and flammable
Isopropyl Chloride	(CH ₃) ₂ CHCl	Irritant and flammable
Methyl Chloride	CH ₃ Cl	Irritant and flammable
Methyl Formate	CH ₃ COOH	Irritant and flammable
Propane	C ₃ H ₈	Non-irritant and flammable
Sulphur Dioxide (Esotoo)	SO ₂	Irritant and non-flammable
Trichloromonofluoromethane (F-11) (Carrene No. 2)	CCl ₃ F	Non-irritant and non-flammable*
Trichlorotrifluoroethane (F-113) (Carrene No. 3)	C ₂ Cl ₃ F ₃	Non-irritant and non-flammable*

*Note—Irritant when used in a room in which there is an unvented flame or burner. Flames made by matches, cigarette lighters, small alcohol lamps and similar devices shall not be considered as unvented flames.

Sec. 219. Permissible Locations

1. Public Buildings

(a) No refrigerating system shall be installed in or on the stairways, halls, lobbies, entrances, exits, or auditoriums of any Public Building.

(b) No piping for the purpose of containing refrigerant shall be installed throughout any Public Building, or from one room to another in such building.

(c) No refrigerating system employing ammonia or sulphur dioxide or any other refrigerant classified as flammable and/or irritant, shall be installed and operated in any Public Building except as specified in paragraphs (d), (e), and (f).

(d) Unit System Refrigerator of the sealed type containing not more than six (6) pounds of an irritant and/or flammable refrigerant such as ammonia or sulphur dioxide, for which sealed unit system a certificate of approval has been issued by the Fire Commissioner, may be installed and operated in schools, lodge rooms, dance halls, bath houses, armories, fire houses, and passenger depots. Such Unit System Refrigerator shall not be used for air conditioning and shall not be installed and operated in subways and the rooms in which persons are confined or helpless in hospitals, asylums, or jails.

(e) Systems employing ammonia or sulphur dioxide used exclusively for mechanical instruction or research purposes may be used in a school or college.

(f) No refrigerating system employing ammonia or sulphur dioxide except a unit system refrigerator of the sealed type, and for which a certificate of approval has been issued by the Fire Commissioner, shall be maintained or operated in an exhibition hall such as the Grand Central Palace, Madison Square Garden, or an Armory.

(g) No refrigerating system employing the direct method of refrigeration, containing more than twenty (20) pounds of a non-irritant and non-flammable refrigerant, shall be used in a room in a Public Building other than a vapor-proof machinery room used for no other purpose and in which no open flame is present or apparatus to produce an open flame is installed.

(h) When a refrigerant marked with an asterisk (*) in Table I is used in any room in a Public Building in which there is an apparatus for producing an open flame, then such apparatus shall be provided with a hood capable of removing the products of combustion to the open air. If such hood is not provided the refrigerant shall be classified as irritant for such room, and shall be subject to all the rules covering irritant refrigerants in this sub-division. Flames made by matches, cigarette lighters, small alcohol lamps, and similar devices shall not be considered as open flames.

(i) No refrigerating system employing an irritant and/or flammable refrigerant shall be used in a railroad passenger depot or subway or in a room opening directly therein.

(j) Not more than twenty (20) pounds of a non-irritant and non-flammable refrigerant shall be used in any one refrigerating system by the direct method of refrigeration for air conditioning in a Public Building.

(k) No ducts shall be installed in a Public Building from one room to another for the purpose of carrying air from a refrigerating system employing the direct method of refrigeration.

(l) Brine or water cooled by an irritant and/or flammable refrigerant may be obtained from a system external to a Public Building for air conditioning such building provided the double indirect open spray method of refrigeration and/or the double indirect closed surface method of refrigeration is used for cooling brine or water in a space external to and completely cut off from such building.

2. Residence Buildings

(a) No refrigerating system shall be installed in or on the stairways, halls, entrances, or auditoriums of any Residence Building.

(b) No refrigerating system containing an irritant and/or flammable refrigerant shall be installed or maintained in a lobby and/or dining room in a Residence Building.

(c) No refrigerant piping shall be carried throughout any Residence Building except as provided in paragraph (d).

(d) No refrigerating system shall be installed from one story to another in a Residence Building except from the roof machinery space to a roof penthouse and/or the story immediately below the roof and in the business section of the building from the basement to the first story and/or first story mezzanine, when

Building except as provided in paragraphs (d) and (f).

(f) No refrigerant piping shall be installed throughout any Business Building or from one building to another except in buildings used exclusively by a single tenant for ice making, cold storage warehouse, meat packing, slaughter house, ice cream manufacture, candy manufacture, dairy, chemical plant, brewery, bakery, solid carbon dioxide manufacture, and/or fur storage, when not more than one hundred (100) persons are employed above the first floor. Where more than one hundred (100) persons are employed above the first floor in such occupancies, then the provisions of paragraph (d) shall apply.

(g) No refrigerating system or systems for sale or demonstration purposes may be installed, stored, operated and/or maintained in a department store except that unit systems employing not more than twenty (20) pounds of refrigerant may be installed and operated in a room or rooms cut off from the rest of the building by tight partitions and tight revolving vestibule door and doors.

(h) No refrigerating system employing an irritant and/or flammable refrigerant shall be installed and/or maintained in a department store except as specified in paragraph (g).

(i) No refrigerating system employing a non-irritant and non-flammable refrigerant shall be used in a department store unless the entire system or systems are confined in a vapor-proof refrigerating machinery room used for no other purpose and in which no open flame or apparatus to produce an open flame is present; except as specified in paragraph (g).

(j) No refrigerating system employing a non-irritant and non-flammable refrigerant by the direct method of refrigeration for air conditioning shall be permitted in a department store.

(k) No refrigerating system employing ammonia, sulphur dioxide, and/or any flammable refrigerant using the direct method and/or the indirect open spray method of refrigeration for air conditioning shall be used in a Business Building, except in building used exclusively for ice making, cold storage warehouse, meat packing, slaughter house, ice cream manufacture, candy manufacture, dairy, chemical plant, brewery, solid carbon dioxide manufacture, and/or fur storage, when not more than one hundred (100) persons are employed above the first floor.

(l) No refrigerating system using the direct method of refrigeration, employing more than five hundred (500) pounds of refrigerant in any one system, shall be installed for air conditioning in a Business Building except in buildings used exclusively for ice making, cold storage warehouse, meat packing, slaughter house, ice cream manufacture, candy manufacture, dairy, chemical plant, brewery, bakery, solid carbon dioxide manufacture, and/or fur storage, when not more than one hundred (100) persons are employed above the first floor.

(m) Brine or water cooled by an irritant and/or flammable refrigerant may be obtained from a system external to a Business Building for air conditioning such building provided the double indirect open spray method of refrigeration and/or the double indirect closed surface method of refrigeration is used.

4. General Requirements

(a) No brine shall be used in any brine circulating system that will generate inflammable vapor at a temperature below one hundred degrees Fahrenheit (100° F.) when tested in a Tagliabue open cup tester and no irritant and/or flammable refrigerant shall be used as a brine.

(b) No refrigerating system employing more than twenty (20) pounds of a hydrocarbon refrigerant shall be installed or maintained in the built-up sections of the city.

Sec. 220. Refrigerating Machinery Rooms:

(a) Each refrigerating machinery room in which an irritant refrigerant is employed must be provided with tight fitting self-closed door or doors and have no partitions or openings that will permit the passage of the refrigerant to other parts of the building.

(b) Air washers, blowers, ducts, etc., used for air conditioning shall be partitioned off from the refrigerating machinery room or made air tight to prevent escaped refrigerant in the machinery room entering the air conditioning system.

Sec. 221. Ventilation:

(a) Each refrigerating machinery room shall be provided with means for ventilation to the outer air. The ventilation shall consist of a window or windows opening directly to the outer air, or mechanical means capable of exhausting the foul air from the room to the outer air.

(b) When a window or windows are used the total area provided shall not be less than that specified in Table No. 2.

(c) When mechanical means are used they shall consist of a power driven exhaust fan of the enclosed case blower type which shall be capable of removing from the refrigerating machinery room the amount of air specified in Table No. 2. The inlet to the fan shall be located near the refrigerating equipment. The outlet from the fan shall terminate outside the building.

(Concluded on Page 19, Column 1)



Send for the New
REFRIGERATION CATALOG
Eight Models of Compressors
Forty-one Models of Highsides
from 1/6 H. P. to 15 H. P.
BRUNNER MANUFACTURING CO.
UTICA, N. Y.

Second Revision of New York Code

(Concluded from Page 16, Column 5)

building. When air flues are used on either the inlet or discharge side of the fan they shall each have an area not less than that specified in Table No. 2. Sharp bends in the run of the flues shall be avoided. Systems containing more than one hundred (100) pounds of refrigerant shall have the control for such mechanical means of ventilation located outside of the refrigerating machinery room.

Table 2

Pounds of refrigerant in system	Mechanical cu. ft. per minute discharge	Mechanical sq. ft. flue area	Window or door area in sq. ft. for one side only
Up to 20	150	1/4	6
50	250	3/8	12
100	400	1/2	16
150	550	5/8	19
200	680	3/4	25
250	800	1	29
300	900	1 1/4	32
400	1,100	1 1/2	38
500	1,275	1 3/4	42
600	1,450	1 7/8	45
700	1,630	2	48
800	1,800	2 1/4	51
900	1,950	2 1/2	55
1,000	2,050	2 3/4	59
1,250	2,350	3	68
1,500	2,800	3 1/2	78
1,750	3,150	3 3/4	87
2,000	3,500	4	95
2,500	4,150	4 1/2	113
3,000	4,500	4 3/4	130
4,000	5,000	5	167
5,000	5,500	5 1/2	204
6,000	6,000	6	241
7,000	7,000	7	278
8,000	8,000	8	315
9,000	9,000	9	342
10,000	10,000	10	360
12,000	12,000	12	425
14,000	14,000	14	470
16,000	16,000	16	540
18,000	18,000	18	580
20,000	20,000	20	630
25,000	25,000	25	760
30,000	30,000	30	870
35,000	35,000	35	940
40,000	40,000	40	1,060
45,000	45,000	45	1,120

Sec. 222. Open Flames and Electrical Equipment:

1. Open Flames

No open flame or any device to produce a flame will be permitted in a refrigerating machinery room in which more than six (6) pounds of a flammable refrigerant is employed.

2. Electrical Equipment

(a) Systems containing more than one hundred (100) pounds of an irritant and/or flammable refrigerant shall be equipped with an auxiliary emergency remote control switch which shall be located immediately outside the machinery room to stop the action of the pressure imposing element.

(b) Each electrically operated system containing over twenty (20) pounds of refrigerant shall be protected by a pressure limiting device located on the high pressure side of the system, set to stop the pressure imposing element at a pressure lower than the value given in Table No. 3, column marked "High Pressure Side," for the refrigerant employed.

(c) Each electrically operated system containing twenty (20) pounds or less of a refrigerant shall be provided with either a pressure limiting device or an overload

relay or link fuse protection, except when the compartment housing the refrigerating equipment is constructed entirely of fireproof materials as classified by the Building Code, or as may be approved by the Fire Commissioner.

Sec. 223. Testing:

Every part of any refrigerating system, except pressure gauges and control mechanism, erected and/or charged with a refrigerant on the premises where such system is to be used shall be tested and proved to be tight before being operated. The high pressure side of such refrigerating system shall be tested with a pressure not less than eighty per cent (80%) of the value shown in Table No. 3, column marked "High Pressure Side," for the particular refrigerant employed in such system. The low pressure side of such refrigerating system shall be tested with a pressure not less than eighty per cent (80%) of the value shown in Table No. 3, column marked "Low Pressure Side," for the particular refrigerant employed in such system. A dated declaration of such test signed by the licensed installer shall be mounted in a frame protected by glass and posted in the machinery room.

Sec. 224. Piping:

(a) Joints containing solder which melts below thirteen hundred degrees Fahrenheit (1,300° F.) shall not be permitted in the refrigerant discharge, liquid, or suction mains erected on the premises. Soft soldering shall be permitted on the outside of the joints to prevent refrigerant leakage only.

(b) All piping or vessels containing the refrigerant shall be supported in a workmanlike manner by metal hangers or other fireproof material.

(c) Piping containing a refrigerant shall not be placed in a hall, stairway, elevator or dumbwaiter shaft, except piping may pass across a hallway if there be no joints in the section in the hallway and it be contained in a rigid conduit.

(d) Every system which may be charged after installation shall have the charging connection located on its low pressure side.

(e) Liquid level gauge glasses, except those of the bull's eye type, shall have automatic closing shut-off valves and such glasses shall be adequately protected against injury by slotted metal casings.

Sec. 225. Safety Devices:

(a) All shell type apparatus of more than six (6) inches in diameter, containing refrigerant in the liquid phase, shall be protected from over pressure by a spring loaded pressure relief valve. This requirement shall not apply to flooded evaporators located in a refrigerator box and/or to a refrigerating system of the sealed type when such system is part of a unit system refrigerator. A fusible plug will not be accepted in lieu of a spring loaded pressure relief valve where such valves are required.

(b) A rupture member not less than one-quarter inch (1/4") in diameter may be substituted for the pressure relief valve in a carbon dioxide system or a system normally operating below atmospheric pressure.

(c) No shut-off valve shall be located between a pressure relief valve and that part of the system protected thereby, unless two pressure relief valves of the required size are used and so arranged that only one pressure relief valve can be cut off for repair purposes at any one time.

(d) The discharge from pressure relief valves, when ammonia or sulphur dioxide refrigerant is used, must be piped to the outside of the building with the outlet orifice turned downward. The discharge from more than one relief valve may be run into a common header, the area of which shall be not less than the area of the pipes connected thereto.

(e) The size of pressure relief valves shall not be less than as follows:

1" for a system containing over 1000 lbs.
1/2" for a system containing 100 1000 lbs.
1/4" for a system containing 20 100 lbs.
1/8" for a system containing 6 20 lbs.
1/16" for a system containing less than 6 lbs.

(f) Pressure relief valves shall be placed above the liquid refrigerant level and set to relieve at not more than the values in pounds per square inch as set forth in Table No. 3 for the high and low pressure sides respectively.

Table 3

Refrigerant	Value in Pounds Per Square Inch High	Value in Pounds Per Square Inch Low
Ammonia	300	150
Butane	100	30
Carbon Dioxide	1,500	1,000
Dichlorodifluoromethane (Freon) (F-12)	225	125
Dichlorotetrafluoroethane (F-114)	75	30
Dichloromethane (Methylene Chloride) (Carrene No. 1)	20	15
Dichloromono-fluoromethane (F-21)	75	25
Dichloroethylene	15	15
Ethane	1,100	600
Ethyl Chloride	75	25
Isobutane	135	60
Isopropyl Chloride	35	15
Methyl Chloride	200	100
Methyl Formate	30	15
Propane	250	150
Sulphur Dioxide (Esotoo)	175	100
Trichloromono-fluoromethane (F-11) (Carrene No. 2)	35	15
Trichlorotrifluoroethane (F-113) (Carrene No. 3)	15	15

Sec. 226. Operating Precautions:

1. Masks and Helmets

(a) Where more than one thousand (1000) pounds of an irritant refrigerant is employed there shall be provided at least two (2) masks or helmets.

(b) Canisters or cartridges shall be renewed immediately after having been used or the seal broken and if unused must be renewed at least once every two (2)

years. The date of filling shall be marked thereon.

(c) Only complete helmets or masks marked as approved by the United States Bureau of Mines and suitable for the refrigerant employed shall be used and shall be kept in a suitable cabinet immediately outside the machinery room or other approved accessible location.

2. Signs

(a) Each refrigerating system shall be provided with an easily legible metal sign permanently attached and easily accessible, giving the kind and total number of pounds of refrigerant contained in the system.

(b) Systems containing more than one hundred (100) pounds of refrigerant shall be provided with metal signs having letters of not less than one-half inch (1/2") in height designating the main shut-off valves to each vessel, main steam or electrical control, remote control switch, pressure limiting device, and on all exposed high pressure and low pressure piping in each room where carried outside machinery room.

(c) Each pressure relief valve shall be sealed and labeled by an easily legible metal tag designating its setting in pounds per square inch.

3. Storage of Refrigerant

(a) Not more than two hundred (200) pounds of refrigerant in containers as prescribed by the Interstate Commerce Commission for the transportation of the refrigerant shall be stored in a machinery room.

(b) No refrigerant shall be stored in a machinery room in which less than twenty (20) pounds is used in the system.

(c) Irritant and/or flammable refrigerants in excess of that permitted in the machinery room shall be stored in a fireproof shed or room used for no other purpose.

(d) Refrigerants withdrawn from systems shall be transferred to containers as prescribed by the regulations of the Interstate Commerce Commission for the transportation of such refrigerant. No refrigerant shall be discharged to a sewer or to the open air except through pressure relief valves.

(e) No container shall be left connected to a system except while charging or withdrawing refrigerant.

NOTE: None of the provisions of Article 18, Chapter 10, Code of Ordinances of the City of New York, as amended, is retroactive on installations made prior to (date of adoption) and for which a permit has been issued.

Article 26 Miscellaneous

Sec. 300. Violations:

Any person who shall wilfully violate or neglect or refuse to comply with any provisions of this chapter, in addition to any other penalties prescribed by law or ordinance, shall, upon conviction, be punished by a fine of not more than five hundred dollars (\$500.00) or by imprisonment not exceeding six (6) months, or by both such fine and imprisonment.

C. K. Michaels, Engineering Inspector, Room 1100, Bureau of Combustibles, Fire Department, New York City.

Illinois Again Leads In Sales by States

The following report shows the sales by states of 14 member companies of Nema listed in columns 4 and 5.

States and Territories	Quantity of Household Low Sides
Alabama	859
Arizona	544
Arkansas	542
California	5,488
Colorado	1,082
Connecticut	665
Delaware	122
District of Columbia	780
Florida	1,642
Georgia	2,274
Idaho	524
Illinois	11,710
Indiana	2,524
Iowa	1,581
Kansas	1,223
Kentucky	1,027
Louisiana	878
Maine	319
Maryland	1,049
Massachusetts	2,911
Michigan	3,814
Minnesota	1,263
Mississippi	215
Missouri	4,548
Montana	220
Nebraska	1,861
Nevada	114
New Hampshire	187
New Jersey	2,734
New Mexico	261
New York	7,434
North Carolina	1,315
North Dakota	148
Ohio	7,432
Oklahoma	1,136
Oregon	1,587
Pennsylvania	4,426
Rhode Island	338
South Carolina	519
South Dakota	421
Tennessee	1,090
Texas	3,607
Utah	392
Vermont	79
Virginia	1,427
Washington	1,684
West Virginia	1,089
Wisconsin	1,425
Wyoming	143
Total United States	88,653
Total Canada	162
Other Foreign (Including U. S. Possessions)	4,552
Total for World	93,367

93,368 Household Refrigerators SOLD By 14 Companies in January, 1935

The following 14 member companies of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) reported sales for January, 1935: Apex Elec. & Mfg. Co., Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Corp., Kelvinator Corp., Leonard Refrigeration Co., Norge Corp., Servel, Inc., Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Electric & Mfg. Co.

Member companies not reporting included: Jomoco, Inc., Merchant & Evans Co., and Sparks-Withington Co. The sales of the reporting companies do, however, include units manufactured for the following concerns: Major Appliance Corp., Montgomery Ward & Co., Potter Refrigerator Corp., Sears, Roebuck & Co., and Truscon Steel Co. The report below covers the sale of household refrigerators only. Reports on sales of commercial units; factory, dealer, and distributor stocks, and production have not been completed.

HOUSEHOLD Lacquer (Exterior) Cabinets with Systems	Domestic Sales Quantity	Domestic Sales Value	Canadian Sales Quantity	Canadian Sales Value	Other Foreign Sales Quantity	Other Foreign Sales Value
Under 3.00 cubic feet..	746	\$ 38,322	8	\$ 456	1,009	\$ 50,396
1. 3 to 3.99 cubic feet..	643	36,575	40	2,597	303	17,205
2. 4 to 4.99 cubic feet..	15,892	1,007,999	41	3,098	1,625	105,005
3. 5 to 5.99 cubic feet..	19,958	1,497,760	26	2,204	509	41,793
4. 6 to 6.99 cubic feet..	14,321	1,306,236	8	812	253	24,575
5. 7 to 7.99 cubic feet..	10,785	1,108,518	2	214	137	15,199
6. 8 to 8.99 cubic feet..	2,270	258,249	1	193	61	7,478
7. 10 to 12.99 cubic feet..	9	1,822	1	193	5	1,425
8. 13 to 24.00 cubic feet..	1	182	1	193	9	1,834
9. Total Lacquer	64,625	5,250,663	126	9,574	3,913	264,910
Porcelain (Exterior) Cabinets with Systems						
10. Under 4.99 cubic feet..	1,518	120,259	1	77	92	7,243
11. 5 to 5.99 cubic feet..	3,286	291,809	7	709	21	1,997
12. 6 to 6.99 cubic feet..	5,598	577,336	3	357	145	15,499
13. 7 to 7.99 cubic feet..	4,121	495,851	4	579	84	10,971
14. 8 to 8.99 cubic feet..	2,274	313,773	2	339	23	3,568
15. 10 to 12.99 cubic feet..	93	9,121	1	193	14	2,343
16. 13 to 24.00 cubic feet..	108	26,247	1	193	24	5,441
17. Total Porcelain	17,478	1,924,396	17	2,061	405	47,062
18. Totals—Lines 9 and 17..	82,103	7,175,059	143	11,635	4,318	311,972
19. Separate Systems	6,353	263,227	19	276	71	3,690
20. Separate Household Low Sides	197	3,339	19	276	163	3,002
21. Totals—Lines 18, 19, 20..	88,653	7,438,286	162	12,187	4,552	318,664
22. High Sides, 1/4 hp. or Less	294	15,677	1	50	224	11,726
23. Cabinets—No Systems	24	383	1	50	154	6,693
24. Total Household	88,971	7,454,046	163	12,287	4,726	327,083

Sales in January Set All-Time Record

(Concluded from Page 1, Column 3)

Members not reporting for January were Jomoco, Merchant & Evans, and Sparks-Withington. Included in the Nema figure are refrigeration units manufactured by member companies for Fairbanks-Morse, Major, Montgomery Ward, Potter, Sears, Roebuck, and Truscon Steel.

A detailed report of January sales of household refrigeration equipment by Nema companies will be found on this page.

Crosley District Men Get 100% Award

CINCINNATI—For exceeding quotas in the sale of electric refrigerators, eight Crosley district managers recently received an additional diamond for their "100 Per Center" pins, given them at the organization of the "100 Per Centers Club" in January, states Howard E. Richardson, assistant to Powell Crosby, Jr., president, Crosley Radio Corp.

Those receiving the diamond awards are: J. L. Allen, C. H. Carey, W. W. Carroll, Don Crosby, G. H. Lasley, H. L. Roper, P. W. Bialkowski, and J. H. Souther.

Five New Indiana Dealers For Crosley Appointed

SOUTH BEND, Ind. — Five New Crosley dealers were appointed in northern Indiana recently, reports J. E. Davison, president of the Davison Sales Co., Crosley distributor here.

The new dealers are: Radio Bargain Store, Radio Mart, and Ries Furniture Co., all of South Bend; Templin Music Stores, of Elkhart; and Mishawaka & Berman's, of Elkhart.

Harry Alter Sells All Radio Parts

CHICAGO—Entire radio stock of the Harry Alter Co., local refrigeration and radio parts distributing company, has been sold to Walter C. Braun, president of the Radolek Co. here, it was announced last week.

The Harry Alter Co. will remain in the refrigeration parts business.

Mr. Braun, head of the Pioneer Automotive Supply Co. as well as of the Radolek Co., is one of the mid-western pioneers in the radio parts distribution business, having established the Barwick Co. and the W. C. Braun Co. here more than 10 years ago.

With the addition of the Alter company's stock to his own supplies, Mr. Braun claims to have one of the largest exclusive distributorships of radio parts in the central states.

Graybar to Distribute Crosleys in Southwest

SAN ANTONIO, Tex. — The Graybar Electric Co. of this city was recently selected as southwest Texas distributor for Crosley radios and electric refrigerators. J. E. Lowrey is the local manager.

Additions to the Graybar staff include F. R. Beardon, supervisor of the Crosley department; A. G. Hood, and C. C. DeBord, territorial representatives; S. L. Sondley, in charge of the service department; Dorothy G. Davis, office clerk.

Conner's Radio Shop Will Sell Norge Line

REEDLEY, Calif. — Conner's Radio and Electric Shop, recently opened here by Cecil Conner, formerly affiliated with M. A. Furlong, is handling Norge refrigerators and RCA radios.

Shorten Every Job with IMPERIAL SERVICE TOOLS

THE vital changes and advances made in refrigeration in the last few years have brought Imperial service tools into especial demand in installation and maintenance work. Three popular items are shown below.

IMPERIAL TUBE CUTTER

94-F. Makes a clean right-angle cut quickly and easily. For copper, brass and block tin tubing, 3/16" to 5/8".

104-F. For tubing 5/16" to 1".

Write for Catalog No. 77-C

IMPERIAL FLARE TOOL

93-F. Gives tubing the right flare and taper to assure a perfectly tight joint. For 3/16" to 1/2" tubing.

95-F. For 1/4" to 5/8" tubing.

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106-F. Quickly pinches copper, brass and aluminum tubing, so that no gas or liquid will pass the sealed part. The line can be disconnected without losing refrigerant.

IMPERIAL BRASS MANUFACTURING CO.

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CONDENSERS

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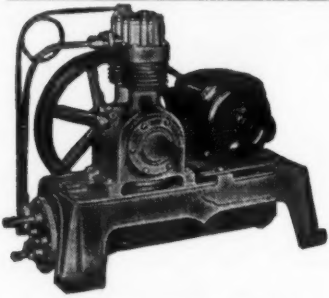
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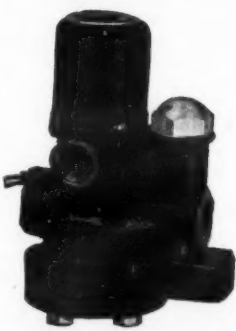


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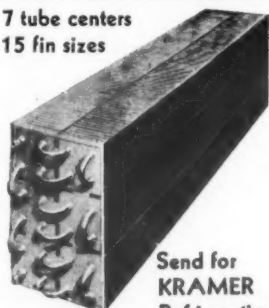
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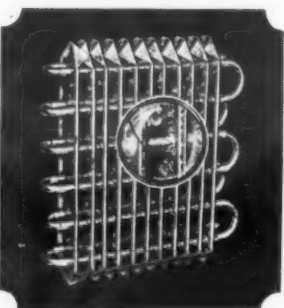
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Ideal for heavy boxes, crates, stoves and furniture. Padded nose piece has instant, exact adjustment. Price \$25. Write for free circular.

Self-Lifting Piano Truck Co.
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Manufacturers of Frigas since 1901



PATENTS

Issued Feb. 26, 1935

1,992,177. REFRIGERATION. Francis R. Bichowsky, Washington, D. C., assignor, by mesne assignments, to General Motors Corp., a corporation of Delaware. Application Aug. 31, 1931. Serial No. 569,362. 15 Claims. (Cl. 62-176.)

11. The method of conditioning air which comprises contacting said air with a solution containing lithium chloride and imparting to said air desired temperature conditions, concentrating said solution and using said solution for conditioning air without the presence of solid lithium salt.

1,992,239. REFRIGERATOR DOOR. Donald E. Rutishauser, St. Louis, Mo., assignor to Hussmann-Ligonier Co., St. Louis, Mo., a corporation of Delaware. Application Aug. 6, 1931. Serial No. 555,496. 3 Claims. (Cl. 20-35.)

1. A refrigerator door comprising a marginal frame provided with a plurality of cavities open at a face of the frame, insulating material located within said cavities, means comprising a marginal plate for closing the open portion of said cavities in a manner to confine said insulating material therein, and a transparent portion within the marginal frame and marginal plate.

1,992,296. FIN TUBING. Edward A. Dewald, Massillon, Ohio, assignor, by mesne assignments, to Reconstruction Finance Corp., a corporation of the United States. Application March 6, 1933. Serial No. 659,892. 3 Claims. (Cl. 257-262.)

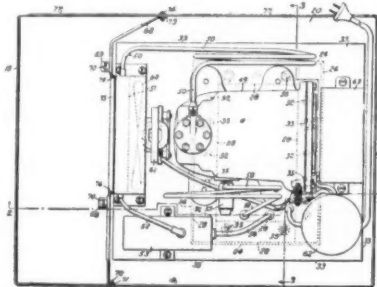
1. In a finned tube construction, a metallic tube, a continuous metallic fin tightly wound edgewise on the tube and protrusions on the surface of the tube penetrating the fin along its inner edge for preventing unwinding of the fin from the tube.

1,992,297. METHOD OF MAKING FIN TUBING. Edward A. Dewald, Massillon, Ohio, assignor, by mesne assignments, to Reconstruction Finance Corp., a corporation of the United States. Original application March 6, 1933. Serial No. 659,892. Divided and this application Dec. 19, 1933. Serial No. 703,062. 9 Claims. (Cl. 29-157.3.)

1. The method of securing a metallic helical fin to a metallic tube which comprises roughening the outer surface of the tube to produce surface protrusions thereon and tightly winding a fin helically on the roughened surface of the tube.

1,992,298. REFRIGERATOR. William D. Drysdale, Buffalo, N. Y., assignor to Walter J. Sugden, Boston, Mass. Application Oct. 3, 1932. Serial No. 635,914. 2 Claims. (Cl. 62-116.)

1. A refrigerator comprising, in combination, a cabinet having a storage compartment and a machinery compartment



1,992,298

thereabove with a horizontal wall therebetween and having an aperture from one compartment to the other, said aperture extending horizontally to one side of said cabinet, a closure received within and fitting three sides of said aperture, a door overlapping the fourth side of said closure, a vertical plate engaging the fourth side of said closure and covering that side of said machinery compartment, an expander within said storage compartment and supported by said closure, and a compressor and a condenser superimposed upon said closure within said machinery compartment and connected in circuit with said expander.

1,992,340. AIR CONDITIONER. Robert A. Wittmann and Robert G. Guthrie, Chicago, Ill., assignors to Peoples Gas By-Products Corp., Chicago, Ill., a corporation of Illinois. Application Aug. 11, 1934. Serial No. 739,372. 5 Claims. (Cl. 257-138.)

1. In an air-conditioner, the combination of a heat-exchanger having means for the heating thereof and means for the passage of air therethrough, means to cause a flow of air through said exchanger to be heated thereby, means to humidify the air after such heating, means to supply the humidifying-medium to said humidifying means, and a thermostat under the influence of the heated humidified air as it leaves the conditioner regulating the action of said humidifying-medium supplying-means.

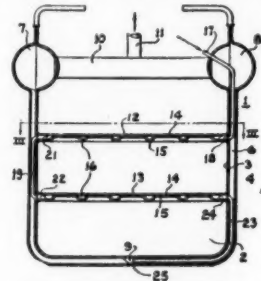
1,992,348. COMPRESSOR. Edward H. Belden, Detroit, Mich. Application July 18, 1932. Serial No. 623,175. Renewed June 27, 1934. 7 Claims. (Cl. 230-139.)

1. A compressor construction comprising a bowl-shaped base having a central tubular boss, a vertical stub spindle fixed in said boss, a motor housing having an armature which has a sleeve resting on said boss and journaled on said spindle and a compressor having a casing which is free from said sleeve and whose peripheral portion is fixed to and supported by the peripheral portion of said armature, said casing comprising a cylindrical ring and disk-like top and bottom members secured together by screws which also secure said casing to the armature.

1,992,379. REFRIGERATION APPARATUS. George A. Leyner, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application April 13,

1934. Serial No. 720,376. 7 Claims. (Cl. 62-126.)

7. A refrigerant containing evaporator comprising a vertically-extending wall having refrigerant passageways therein, a



1,992,379

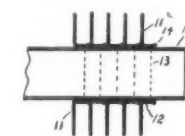
horizontal shelf attached intermediately of the vertically-extending wall and having refrigerant passageways therein, and means for conveying refrigerant in series first to the passageways in the shelf, and thence to the bottoms of the passageways in the vertical wall for transmission upwardly through the passageways in the vertical wall, said means being substantially contained within the confines of said passageways.

1,992,645. DEVICE FOR SHATTERING ICE CUBES. George H. Wilkins, Greenfield, Mass. Application April 26, 1934. Serial No. 722,564. 3 Claims. (Cl. 83-62.)

1. In a device for cracking small pieces of ice, an ice-receiving magazine having some of its walls formed with openings, pointed rod members normally located outside of and opposite the openings, slidable U-shaped means for supporting the rod members, said means each having a slot therein, lever means, studs thereon connected to the rod-supporting means by being located in the slots for moving the pointed rod members through the openings in the magazine in opposite directions for shattering ice in the magazine, said slots being disposed on opposite sides of the pivotal point of the lever means and said U-shaped means having an elongated slot to accommodate the pivot-supporting member of the lever when operated.

1,992,646. HEAT TRANSFER DEVICE. Fred M. Young, Racine, Wis., assignor to Young Radiator Co., Racine, Wis. Application April 20, 1934. Serial No. 721,488. 4 Claims. (Cl. 257-263.)

1. A heat transfer device, comprising a tube, a multiplicity of closely spaced fins

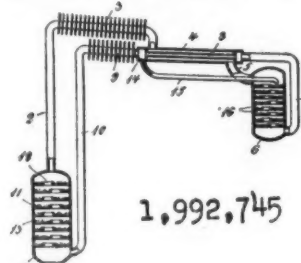


1,992,646

having sleeves through which said tube extends, said sleeves having irregular ends, the high points of which are bent outwardly to thereby form stops for the adjacent fins.

1,992,745. ABSORPTION REFRIGERATING APPARATUS. Thore Martin Elfving, Stockholm, Sweden. Application Feb. 8, 1932. Serial No. 591,600. In Sweden Feb. 9, 1931. 1 Claim. (Cl. 62-118.)

An intermittently operating absorption refrigerating apparatus, comprising a boiler-absorber, an evaporator, conduits



1,992,745

arranged in two branches interconnecting the boiler-absorber and the evaporator providing open communication therebetween and forming a circulating circuit, a quantity of inert gas within said circulating circuit, condensers interposed in said circulating circuit, and a heat exchanger interconnecting said conduit branches.

1,992,783. ICE SHAVING MACHINE. Ralston R. Smith, Oakland, Calif. Application Feb. 3, 1931. Serial No. 513,127. 1 Claim. (Cl. 83-62.)

1. In a machine for shaving ice, a vertically disposed container supported on a hollow base and having a discharge opening adjacent its bottom, a motor enclosed in said base and having a drive-shaft extending upwardly to a position within the container, a rotor disposed in the bottom of the container and secured to said drive-shaft, said rotor comprising a pair of horizontally-disposed, vertically-spaced discs, the uppermost of said discs being provided with radial slots, blades secured in said slots to shave ice in the container, and radial vanes extending between said discs to insure the discharge of all of the shaved ice outwardly through said discharge opening.

1,992,795. HEAT TRANSFER UNIT. Fred M. Young, Racine, Wis. Application July 7, 1933. Serial No. 679,286. 3 Claims. (Cl. 257-137.)

2. A heat transfer unit, comprising suitable headers, a fan motor and a fan motor support, a number of tubes having an elliptical cross section shape, positioned in direction of air-flow, a plurality of closely spaced fins through which said tubes extend, said fins corrugated at their front and rear edges, said tubes having rounded ends adapted to be expanded in registering openings in said headers, said motor support extending from one of said headers to said motor and having an air foil shape in direction of air-flow.

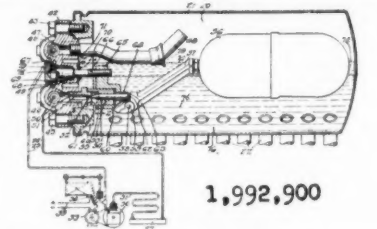
1,992,889. METHOD AND APPARATUS FOR REFRIGERATION. Edward Rice, Jr., New York, N. Y. Original application July 14, 1930. Serial No. 467,999. Divided and this application Aug. 25,

1934. Serial No. 741,465. 30 Claims. (Cl. 62-91.5.)

3. The method of refrigerating by means of a solid refrigerant, which consists in providing between the refrigerant and the region to be refrigerated a principal path of heat transfer in the form of a thermal conductor capable of effecting a transfer of heat from said region to the refrigerant at a rate higher than that required for a given effective refrigerating temperature, and interposing in said path a medium of thermal-transfer resistance to thereby control and regulate the rate of heat exchange between the refrigerant and the region to be refrigerated.

1,992,900. REFRIGERATING APPARATUS. Robert D. McIntosh, River Forest, Ill., assignor to The Imperial Brass Mfg. Co., Chicago, Ill., a corporation of Illinois. Application Jan. 2, 1932. Serial No. 584,467. 13 Claims. (Cl. 62-126.)

9. In a refrigerating system, the combination with an evaporating chamber therein adapted to be partially filled with



1,992,900

liquid refrigerant upon which is superimposed a layer of lubricating oil, of an outlet pipe therein connected to a vapor pipe and having its main inlet for the gaseous refrigerant above the level of the oil and an opening therein determining the oil level, an inlet for liquid refrigerant, a float rising and falling with the level of the liquid refrigerant in the chamber, a valve for said inlet moved to closing position as the float rises, a lever connected to the float and cooperating with the valve, a member movable toward and from the inlet and serving as a fulcrum for the lever, a screw journaled in the end of said chamber and having its end threaded into the fulcrum member, and a cap nut threaded into said end and covering the outer end of the screw.

1,992,902. VALVE. Robert D. McIntosh, Chicago, Ill., assignor to The Imperial Brass Mfg. Co., Chicago, Ill., a corporation of Illinois. Application Feb. 1, 1934. Serial No. 709,370. 2 Claims. (Cl. 251-31.)

1. In a valve, the combination with a two-part valve casing, the lower part having inlet and outlet passages and a valve seat between them, and the upper part detachably secured on the top of the lower part and having an aperture through the top, of an operating member movable through said aperture to open and close the valve to any desired extent, an imperforate sealing diaphragm engaged on its upper surface by the operating member, a valve stem with its upper end engaging the under side of the sealing member, a packed bearing in the top of the lower part of the casing through which the valve stem slides, a valve on said stem cooperating with the seat, a bearing member slidable in the top of the bearing and engaging the packing, and a helically-coiled expanding spring surrounding the valve stem and having its upper end cooperating with the top of the valve stem and its lower end engaging the bearing member to increase the pressure on the packing as the valve is moved toward its closed position, thereby sealing the interior of the lower part from the upper in all positions of the valve and protecting the diaphragm from possible vibration and preventing possible leakage in case the diaphragm should be ruptured.

1,992,906. HEAT INSULATING MATERIAL. Charles W. Becker, Chicago, Ill., assignor to Wilson & Co., Inc., Chicago, Ill., a corporation of Delaware. Application March 15, 1933. Serial No. 660,974. 3 Claims. (Cl. 106-18.)

1. The herein described insulating block formed of interlaced hog hair compressed to a density of four to ten ounces per board foot and molded to the form of a rectangular prism, the individual hog hairs throughout the block being coated with an asphaltic binder which unites the hairs at their intersections.

ANSUL

SULPHUR DIOXIDE

METHYL CHLORIDE

✓ Dry
✓ Clean
✓ Pure

Need anything more be said except that the high quality of Ansul Refrigerants is guaranteed by an individual analysis of each cylinder.

ANSUL CHEMICAL CO.
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SPECIAL ADVERTISING RATE (this column only)—\$12.00 per space.

Payment is required monthly in advance to obtain this special low rate.

Minimum Contract for this column—13 insertions in consecutive issues.

QUESTIONS**Buckeye Refrigerator**

No. 2112 (Dealer, California)—"Can you give me the address of the Buckeye electric refrigerator company?"

Answer: The Buckeye electric refrigerator is made by Domestic Industries, Inc., 282 N. Diamond St., Mansfield, Ohio.

Gasoline-Driven Units

No. 2113 (Manufacturer, New York)—"We are writing to inquire whether there are manufacturers other than Briggs & Stratton, and Waukesha Motor Co. of gasoline-driven refrigeration equipment."

Our interest is to satisfy an urgent cable inquiry from our agents in Australia, and concerns, particularly, sizes of ½, 1, and 3 hp.

Answer: The following manufacturers of electric refrigeration units also make gasoline motor-driven units:

Baker Ice Machine Co.
1517 Evans St., Omaha, Nebr.
Brunner Mfg. Co., Utica, N. Y.
Copeland Refrigeration Corp.
1331 Holden Ave., Detroit, Mich.
Merchant & Evans Co.
21st & Washington Aves., Philadelphia, Pa.
Universal Cooler Corp.
7424 Melville Ave., Detroit, Mich.
Williams Oil-O-Matic Heating Corp.
Bloomington, Ill.

All of these companies make refrigeration units within the range of ½ hp. to 3 hp., and should be able to supply your needs.

Compact Kitchens

No. 2114 (Dealer, Arizona)—"We would greatly appreciate a list of the names of the manufacturers who at the present time are building combination kitchen cabinets which include the Monel sink, refrigerator, gas stove (or electric stove), and cabinets for food and dish storage. We are certain that these assembled units are being built for apartment, hotel, or restaurant use, and would like to get in touch with the various manufacturers of same."

Answer: Built-in kitchen units including electric refrigerator, sink, and electric stove are manufactured by Electric Invisible Kitchen Co., Merchandise Mart, Chicago, Ill., and The Parsons Co., 15843 Second Blvd., Detroit, Mich.

Reconditioned Unit Jobbers

No. 2115 (Dealer, Oklahoma)—"Some time last year while I was a subscriber to your magazine, I read an ad placed by some New York City company, whose business was reconditioning and selling used electric refrigerators of all makes."

I am very much interested in getting in touch with this company or with any other companies which are in that business. If you will be kind enough to furnish me with addresses of some of your customers who are in the above type of business, I will appreciate it very much."

Answer: The following companies are jobbers of reconditioned household electric refrigerators:

California Refrigerator Co.
1077 Mission St., San Francisco, Calif.
Continental Refrigerator Corp.
318 E. 32nd St., New York, N. Y.
Keystone Refrigerator Exchange, Inc.
479 First Ave., New York, N. Y.
Nome Refrigerator Co.
4856 Cass Ave., Detroit, Mich.
Pilgrim Refrigeration Co.
43 39th Place, Long Island City, N. Y.**Cabinet Air Conditioners**

No. 2116 (Dealer, Illinois)—"We will appreciate receiving a list of the names and addresses of manufacturers of cabinet type air-cooling and air-conditioning equipment. Kindly have this list include both the type with the machine in the cabinet, also the remote installation."

Answer: Complete information concerning all leading makes of cabinet type air-conditioning equipment will be published in the March 27 issue of ELECTRIC REFRIGERATION NEWS.

Unit Repair Booklet

No. 2117 (Service Man, New Jersey)—"Would you please give me the exact address of William F. Ogden, who is with the Georgia Power Co.?"

"Want to get a copy of the booklet, 'Long Live Your Refrigerator,' part of which was published in the Feb. 13 issue."

Answer: Address Mr. William F. Ogden, superintendent of appliance repairs at the Georgia Power Co., Atlanta, Ga.

Specifications

No. 2118 (Manufacturers' Sales Representative, Missouri)—"In one of your monthly publications, you listed

the specifications of the various makes of refrigerators on the market. "We would like to obtain two copies of this issue."

Answer: We are at present collecting specifications for publication in ELECTRIC REFRIGERATION NEWS.

The schedule of issues containing 1935 specifications will be as follows: March 20, household; March 27, air conditioning; April 3, commercial.

Last time specifications of household electric refrigerators were published was in the May 30, 1934, issue.

Wittenmeier Address

No. 2119 (Finance Company, New York)—"We would greatly appreciate your informing us as to the address of the Wittenmeier Co. which does a refrigerating and air-conditioning business in the middle west. We are desirous of getting in touch with this company, but do not have its address."

Answer: The Wittenmeier Machinery Co. may be addressed at 815 North Spaulding Ave., Chicago, Ill.

Lists of all manufacturers of refrigeration machinery, parts and supplies, will be brought up to date in the 1935 REFRIGERATION DIRECTORY, which will be ready for distribution in the very near future.

Replacement Parts

No. 2120 (Dealer, California)—"Will you please advise us by return air mail the names and addresses of manufacturers of complete lines of replacement parts for Frigidaire and Kelvinator and other makes of ice machines."

Answer: The 1934 REFRIGERATION DIRECTORY AND MARKET DATA BOOK listed manufacturers of replacement parts as follows: compressor parts, page 131; condenser parts, page 187; cooling unit parts, page 202; service parts, page 302.

The 1935 REFRIGERATION DIRECTORY will bring these lists up to date.

Electrolux Capacities

No. 2121 (Distributor, Louisiana)—"I will be indebted to you if you can supply me with the Nema net cubic footage rating of the 1935 Electrolux line. All of the literature I have seen to date has omitted this information and would like to have it as a basis of a comparative chart I am compiling on the makes of mechanical refrigeration sold locally."

Answer: The story in the Jan. 23 issue of ELECTRIC REFRIGERATION NEWS about the new 1935 models gave the capacity in net cubic feet.

Data on Freon, Carrene

No. 2122 (Manufacturer, Ohio)—"Please advise, if you can, the chemical composition of the following refrigerants: Freon, Carrene."

Answer: Page 11 of the Sept. 26, 1934, issue and page 10 of the Oct. 10 issue of ELECTRIC REFRIGERATION NEWS give this information for various classifications of Carrene and Freon.

Piston Manufacturers

No. 2123 (Manufacturer, Minnesota)—"We manufacture refrigerator compressor units for commercial and domestic use. We would like to get the address of a reliable refrigerator piston manufacturer."

Answer: Addresses of manufacturers of pistons for refrigeration compressors are:

Aluminum Industries, Inc.
2416 Beekman St., Cincinnati, Ohio.
American Die & Tool Co.
207 Buttonwood St., Reading, Pa.
American Engineering Co.
2420 Aramingo Ave., Philadelphia, Pa.
Ecorae Foundry Co., Ecorse, Mich.
Gale Mfg. Co., Albion St., Albion, Mich.
Houde Engineering Corp.
537 E. Delavan Ave., Buffalo, N. Y.
Arrow Head Steel Products Co.
1101 Stinson Blvd., Minneapolis, Minn.
Bohn Aluminum & Brass Corp.
2512 E. Grand Blvd., Detroit, Mich.
Dayton Pump & Mfg. Co.
500 Webster St., Dayton, Ohio.
Little Bros. Foundry Co.
24th & Connor Sts., Port Huron, Mich.
Sealed Power Corp.
500 Sanford St., Muskegon, Mich.
Spencer-Smith Machine Co., Howell, Mich.**Conditional Sales Case**

No. 2124 (Lawyer, Pennsylvania)—"On Feb. 6, in your ELECTRIC REFRIGERATION NEWS, an item concerning the conditional sales with respect to mortgages, was printed. In other words, this item showed that the courts of Pennsylvania have come to the conclusion that, unless a release is obtained from the mortgagee, a mortgagee will have the paramount right over goods sold under conditional sales when they take possession of the premises."

I represent a concern in Philadelphia, who is a subscriber to the ELECTRIC REFRIGERATION NEWS, and I have been requested to find the information with respect to that case.

Although I have hunted high and low, I cannot find it in the Pennsyl-

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SALES EXECUTIVE with many years of successful factory and jobbing experience, particularly refrigeration, radio, and air conditioning, is desirous of corresponding with manufacturers who might be interested in the services of one who understands wholesale and retail merchandising thoroughly. At present employed. Will consider locating anywhere. Replies confidential. Box 685, Electric Refrigeration News.

AM 32 YEARS of age—married—sufficiently experienced in air conditioning sales and application engineering to handle complete distributor operation. Desire to correspond with responsible distributor with a view to working out a profit sharing contract. If desired could assist in securing of air conditioning distribution franchise. Box 687, Electric Refrigeration News.

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ISOBUTANE: Help us bring Isobutane prices down to proper level. We offer purest, dryest, and highest quality Isobutane obtainable; in your 80 lb. cylinders at \$7.50, in our 120 lb. cylinders, \$7.00, in small lots \$1.00 per pound. The Standard Refrigeration Company of Pittsburgh, 1148 Dohrman St., McKees Rocks, Pa.

PARTS & SUPPLIESWHOLESALE Refrigeration Supply Parts—Indiana's most complete stock. Representing Kerotest valves and fittings, Brunner and Lipman compressors, Peerless fin coils, Penn and Detroit controls, Virginia Smelting SO₂ and methyl chloride gas, Gilmer belts, Dehydrated tubing, Marsh gauges, Chase sweat fittings, Oil, draft beer supplies, etc. F. H. Langenkamp Co., 231 E. South St., Indianapolis, Ind.**PATENTS**

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. Van Deventer (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

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MEN: Train for Refrigeration and Air Conditioning, at home, using same text material you would use in best resident school. Supervised individual instruction under licensed teacher with Doctor's degree. Shoeck School, Alton, Ill.

vania State Reports. I will therefore appreciate any information you can give me regarding the citation of the case."

Answer: It is our understanding that the title of this case is Central Lithograph Co. vs. Eatmor Chocolate Co. in re Elines, Inc. This Supreme Court case is designated as No. 258, March term, 1934, but the information we have indicates that it is not yet available in the bound reports.

Wants Used Models

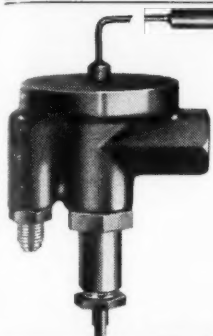
No. 2125 (Distributor, Minnesota)—"We are interested in the purchase of used or discontinued models of electric refrigerators. If you have knowledge of any source of supply for such items, will you kindly advise us."

Economical Assembly

ACE HARD RUBBER DOORS, RAILS, JAMBS and other parts are so well standardized in all dimensions that their use guarantees important labor economies in assembling into Display Refrigeration Equipment.

Our complete catalogue which we will send for the asking proves the simplicity with which our products may be incorporated in your structural plans.

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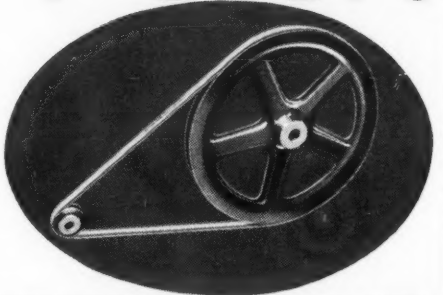
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4. Competitively priced.

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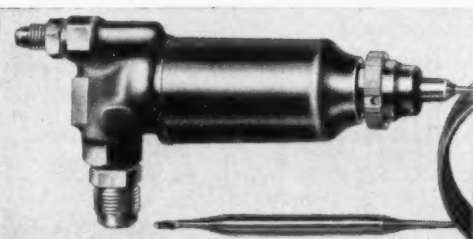
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